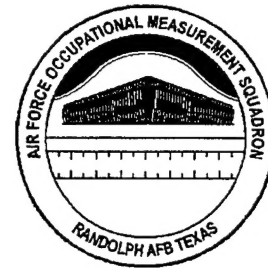
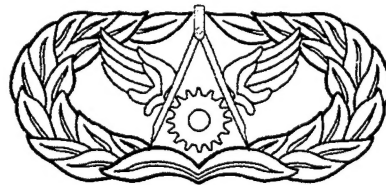




**UNITED STATES
AIR FORCE**



OCCUPATIONAL SURVEY REPORT



**ELECTRICAL SYSTEMS
AFSC 3E0X1**

OSSN: 2367

SEPTEMBER 1999

**OCCUPATIONAL ANALYSIS PROGRAM
AIR FORCE OCCUPATIONAL MEASUREMENT SQUADRON
AIR EDUCATION and TRAINING COMMAND
1550 5th STREET EAST
RANDOLPH AFB, TEXAS 78150-4449**

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TABLE OF CONTENTS

	<u>PAGE NUMBER</u>
PREFACE	ix
SUMMARY OF RESULTS	xi
INTRODUCTION	1
Background	1
SURVEY METHODOLOGY	2
Inventory Development	2
Survey Administration	2
Survey Sample	3
Task Factor Administration	4
SPECIALTY JOBS	5
Overview of Specialty Jobs	5
Group Descriptions	8
Comparison to Previous Study	15
ANALYSIS OF DAFSC GROUPS	19
ACTIVE DUTY DAFSC	19
Skill-Level Descriptions	19
ANG DAFSC	28
Skill-Level Descriptions	28
AFRC DAFSC	36
Skill-Level Descriptions	36
ACTIVE DUTY/ANG/AFRC DAFSC	42
TRAINING ANALYSIS	49
First-Enlistment Personnel	49
Training Emphasis (TE) and Task Difficulty (TD) Data	55
Specialty Training Standard (STS)	58

TABLE OF CONTENTS (CONTINUED)

	<u>PAGE NUMBER</u>
JOB SATISFACTION ANALYSIS	61
ACTIVE DUTY JOB SATISFACTION	61
ANG AND AFRC JOB SATISFACTION	61
IMPLICATIONS	68

TABLE OF CONTENTS
(Tables, Figures, Appendices)

	<u>PAGE NUMBER</u>
TABLE 1 COMMAND DISTRIBUTION OF AFSC 3E0X1 PERSONNEL	3
TABLE 2 PAYGRADE DISTRIBUTION OF SURVEY SAMPLE	4
TABLE 3 RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS	16
TABLE 4 SELECTED BACKGROUND DATA FOR SPECIALTY JOBS	17
TABLE 5 SPECIALTY JOB COMPARISON BETWEEN CURRENT AND 1996 SURVEYS	18
TABLE 6 DISTRIBUTION OF AD SKILL LEVEL DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS (PERCENT RESPONDING)	21
TABLE 7 RELATIVE PERCENT TIME SPENT ON DUTIES BY AD SKILL LEVEL DAFSC GROUPS	22
TABLE 8 REPRESENTATIVE TASKS PERFORMED BY <u>AD</u> 3E031 PERSONNEL	23
TABLE 9 REPRESENTATIVE TASKS PERFORMED BY <u>AD</u> 3E051 PERSONNEL	24
TABLE 10 TASKS WHICH BEST DIFFERENTIATE BETWEEN AD DAFSCs 3E031 AND 3E051 PERSONNEL (PERCENT MEMBERS PERFORMING)	25
TABLE 11 REPRESENTATIVE TASKS PERFORMED BY <u>AD</u> 3E071 PERSONNEL	26
TABLE 12 TASKS WHICH BEST DIFFERENTIATE BETWEEN AD DAFSCs 3E051 AND 3E071 PERSONNEL (PERCENT MEMBERS PERFORMING)	27
TABLE 13 DISTRIBUTION OF ANG SKILL LEVEL DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS (PERCENT RESPONDING)	29
TABLE 14 RELATIVE PERCENT TIME SPENT ON DUTIES BY ANG SKILL LEVEL DAFSC GROUPS	30
TABLE 15 REPRESENTATIVE TASKS PERFORMED BY <u>ANG</u> 3E051 PERSONNEL	31
TABLE 16 REPRESENTATIVE TASKS PERFORMED BY <u>ANG</u> 3E071 PERSONNEL	32

TABLE OF CONTENTS (CONTINUED)
(Tables, Figures, Appendices)

	<u>PAGE NUMBER</u>
TABLE 17 TASKS WHICH BEST DIFFERENTIATE BETWEEN ANG DAFSCs 3E051 AND 3E071 PERSONNEL (PERCENT MEMBERS PERFORMING)	33
TABLE 18 REPRESENTATIVE TASKS PERFORMED BY <u>ANG</u> 3E091 PERSONNEL	34
TABLE 19 TASKS WHICH BEST DIFFERENTIATE BETWEEN ANG DAFSCs 3E071 AND 3E091 PERSONNEL (PERCENT MEMBERS PERFORMING)	35
TABLE 20 DISTRIBUTION OF AFRC SKILL LEVEL DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS (PERCENT MEMBERS RESPONDING)	37
TABLE 21 RELATIVE PERCENT TIME SPENT ON DUTIES BY AFRC SKILL LEVEL DAFSC GROUPS	38
TABLE 22 REPRESENTATIVE TASKS PERFORMED BY <u>AFRC</u> 3E051 PERSONNEL	39
TABLE 23 REPRESENTATIVE TASKS PERFORMED BY <u>AFRC</u> 3E071 PERSONNEL	40
TABLE 24 TASKS WHICH BEST DIFFERENTIATE BETWEEN AFRC DAFSCs 3E051 AND 3E071 PERSONNEL (PERCENT MEMBERS PERFORMING)	41
TABLE 25 TASKS WHICH BEST DIFFERENTIATE BETWEEN AD DAFSC 3E051 AND ANG DAFSC 3E051 PERSONNEL (PERCENT MEMBERS PERFORMING)	43
TABLE 26 TASKS WHICH BEST DIFFERENTIATE BETWEEN AD DAFSC 3E051 AND AFRC DAFSC 3E051 PERSONNEL (PERCENT MEMBERS PERFORMING)	44
TABLE 27 TASKS WHICH BEST DIFFERENTIATE BETWEEN ANG DAFSC 3E051 AND AFRC DAFSC 3E051 PERSONNEL (PERCENT MEMBERS PERFORMING)	45
TABLE 28 TASKS WHICH BEST DIFFERENTIATE BETWEEN AD DAFSC 3E071 AND ANG DAFSC 3E071 PERSONNEL (PERCENT MEMBERS PERFORMING)	46
TABLE 29 TASKS WHICH BEST DIFFERENTIATE BETWEEN AD DAFSC 3E071 AND AFRC DAFSC 3E071 PERSONNEL (PERCENT MEMBERS PERFORMING)	47
TABLE 30 TASKS WHICH BEST DIFFERENTIATE BETWEEN ANG DAFSC 3E071 AND AFRC DAFSC 3E071 PERSONNEL (PERCENT MEMBERS PERFORMING)	48

TABLE OF CONTENTS (CONTINUED)
(Tables, Figures, Appendices)

	<u>PAGE NUMBER</u>
TABLE 31 RELATIVE PERCENT TIME SPENT ON DUTIES BY FIRST-ENLISTMENT PERSONNEL (N=382)	51
TABLE 32 REPRESENTATIVE TASKS PERFORMED BY AFSC 3E0X1 FIRST-ENLISTMENT PERSONNEL (N=382)	52
TABLE 33 EQUIPMENT/TOOLS USED BY FIRST-ENLISTMENT AFSC 3E0X1 PERSONNEL	53
TABLE 34 VEHICLES OPERATED BY FIRST-ENLISTMENT AFSC 3E0X1 PERSONNEL	54
TABLE 35 SYSTEM/ELECTROMECHANICAL EQUIPMENT MAINTAINED BY FIRST-ENLISTMENT AFSC 3E0X1 PERSONNEL	54
TABLE 36 TASKS RATED HIGHEST IN TRAINING EMPHASIS	56
TABLE 37 TASKS RATED HIGHEST IN TASK DIFFICULTY	57
TABLE 38 EXAMPLES OF TECHNICAL TASKS PERFORMED BY AFSC 3E0X1 GROUP MEMBERS SUGGESTED FOR PROFICIENCY CODE REVIEW TO PERFORMANCE CODING (PERCENT MEMBERS PERFORMING)	59
TABLE 39 EXAMPLES OF TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE GROUP MEMBERS AND NOT REFERENCED TO THE STS	60
TABLE 40 COMPARISON OF JOB SATISFACTION INDICATORS BY TAFMS AD GROUPS TO OTHER SUPPORT AFSs (PERCENT MEMBERS RESPONDING)	62
TABLE 41 COMPARISON OF JOB SATISFACTION INDICATORS BY TAFMS AD GROUPS TO THE 1996 SAMPLE (PERCENT MEMBERS RESPONDING)	63
TABLE 42 COMPARISON OF JOB SATISFACTION INDICATORS BY SPECIALTY JOBS (PERCENT MEMBERS RESPONDING)	64
TABLE 43 COMPARISON OF JOB SATISFACTION INDICATORS BY AD SPECIALTY JOBS (PERCENT MEMBERS RESPONDING)	65
TABLE 44 COMPARISON OF JOB SATISFACTION INDICATORS BY ANG SPECIALTY JOBS (PERCENT MEMBERS RESPONDING)	66

TABLE OF CONTENTS (CONTINUED)
(Tables, Figures, Appendices)

	<u>PAGE NUMBER</u>
TABLE 45 COMPARISON OF JOB SATISFACTION INDICATORS BY AFRC SPECIALTY JOBS (PERCENT MEMBERS RESPONDING)	67
FIGURE 1 AFSC 3E0X1 CAREER LADDER SPECIALTY JOBS (N=1488).....	7
FIGURE 2 DISTRIBUTION OF 3E0X1 FIRST-ENLISTMENT PERSONNEL ACROSS SPECIALTY JOBS (N=382).....	50
APPENDIX A SELECTED REPRESENTATIVE TASKS PERFORMED BY SPECIALTY JOB GROUPS	69
APPENDIX B SELECTED REPRESENTATIVE TASKS PERFORMED BY JOBS IN THE ELECTRICAL SYSTEMS CLUSTER	71

PREFACE

This report presents the results of an Air Force Occupational Survey of the Electrical Systems career ladder, Air Force Specialty Code (AFSC) 3E0X1. Authority for conducting occupational surveys is contained in AFI 36-2623. Computer products used in this report are available for use by operations and training officials.

The survey instrument was developed by Capt Denise Minerva. Computer programming support was provided by Mrs. Jeanie Guesman and administrative support was provided by Ms. Dolores Navarro. Mr. James A. Earles analyzed the data and wrote the final report. This report has been reviewed and approved by Lt Col Roger W. Barnes, Chief, Airman Analysis Section, Occupational Analysis Flight, Air Force Occupational Measurement Squadron (AFOMS).

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to AFOMS/OMYXI, 1550 5th Street East, Randolph Air Force Base, Texas 78150-4449, or by calling DSN 487-5543. For information on the Air Force occupational survey process or other on-going projects, visit our web site at <http://www.omsq.af.mil>.

JAMES M. COLLINS, Lt Col, USAF
Commander
Air Force Occupational Measurement Sq

JOSEPH S. TARTELL
Chief, Occupational Analysis Flight
Air Force Occupational Measurement Sq

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SUMMARY OF RESULTS

1. **Survey Coverage:** The Electrical Systems career ladder was surveyed to provide current job and task data for use in updating career ladder documents and training programs. Survey results are based on responses from 1488 Active Duty (AD), Air National Guard (ANG), and Air Force Reserve Command (AFRC) members accounting for 56 percent of the total population surveyed.
2. **Specialty Jobs:** Three jobs and four clusters were identified in the career ladder structure analysis. A core electrician cluster consists of five typical jobs: interior, exterior, lineman, airfield, and mobility. There is a sixth typical job, alarms, which was too dissimilar to group with the core cluster, and is therefore one of the three independent jobs. An entry-level cluster has a general electrical job and an airfield lighting job. The remaining two clusters are an ANG cluster and an AFRC cluster. All of these are oriented toward technical task performance, some with heavy concentration on mobility and contingency tasks, and account for 82 percent of the survey population. The two remaining jobs are management and training.
3. **Career Ladder Progression:** Skill-level progression for members of this AFSC is similar to most career ladders. The members advance from the technical aspects of the career ladder to more involvement in supervision and then management as they move up the skill levels. This progression is most apparent with the AD forces. The ANG and AFRC personnel at the 7-skill level still devote a high percentage of their work time to technical tasks.
4. **Training Analysis:** The current STS provides comprehensive coverage of the work performed by career ladder personnel. Some STS elements warrant review of proficiency coding based on survey data. Some tasks were not referenced to the STS, but many of these were too general in scope.
5. **Job Satisfaction:** Job satisfaction among AD AFSC 3E0X1 personnel is reasonably high for all airmen tenure groups. Electrical Systems second enlistment airmen rate their job as less interesting and less satisfying than the 1996 sample of AFSC 3E0X1 airmen, while first enlistment and career airmen have remained the same. Reenlistment intentions for second enlistment and career AD groups are down from the 1996 survey sample.
6. **Implications:** Survey results clearly indicate that the present classification structure, as described in the latest specialty description, accurately portrays the jobs performed in this career ladder. Career ladder training documents appear, on the whole, to be well supported by survey data, but require further review to ensure appropriate proficiency coding. The career ladder progression is similar to other AFSCs; technical involvement at the lower skill levels with the progression to more management at the 7-skill level being stronger for the AD component than the ANG and AFRC. Job satisfaction is fairly high for AD first-enlistment and the career airmen. Additionally, this Air Force Specialty (AFS) has falling reenlistment intentions for second-enlistment and career personnel.

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**OCCUPATIONAL SURVEY REPORT (OSR)
ELECTRICAL SYSTEMS
(AFSC 3E0X1)**

INTRODUCTION

This is a report of an occupational survey of the Electrical Systems career ladder conducted by the Air Force Occupational Measurement Squadron (AFOMS). The current Electrical Systems career ladder was created in October 1992 with the merger of AFSC 545X3, CE Control, AFSC 542X0, Electrician, and AFSC 542X1, Electrical Power Line. Survey data will be used to identify current utilization patterns among career ladder personnel and evaluate career ladder documents and training programs. The last OSR published for the Electrical Systems career ladder was February 1996.

Background

As described in the AFMAN 36-2108, *Airman Classification* dated 30 April 1999, *Specialty Description* dated 30 April 1997, Electrical Systems personnel are responsible for:

- Installing, maintaining, and repairing energized and de-energized electrical distribution systems and components
- Maintaining, inspecting, and repairing special purpose electrical systems
- Maintaining proficiency in first aid, safety, and environmental protection procedures
- Advising on problems installing and repairing electrical power distribution and special purpose electrical systems
- Performing planning activities

Personnel entering the AFSC 3E0X1 career ladder must attend the J3ATR3E011-000 Electrical Systems Apprentice I course, 37 academic days, and the J3ATR3E011-001 Electrical Systems Apprentice II course, 26 academic days, and the J3ABR3E031-005 Electrical Systems Apprentice, Mission Ready Technician (MRT) course, 81 academic days, at Sheppard AFB TX. Upon completion of these AFSC courses, the graduate is awarded the 3-skill level.

Entry into this career ladder currently requires an Armed Forces Vocational Aptitude Test Battery (ASVAB) score of Electronics - 33; a strength factor of "M" (Weight lift of 90 lbs), qualification to operate government vehicles, normal color vision, and freedom from fear of heights.

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SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) Occupational Survey Study Number (OSSN) 2367, dated December 1998. A tentative task list was prepared after reviewing pertinent career ladder publications and directives, pertinent tasks from the previous survey instrument, and data from the last OSR. The preliminary task list was refined and validated through personal interviews with 24 subject-matter experts (SMEs) at the following training location and operational installations:

<u>BASE</u>	<u>UNIT VISITED</u>
Davis-Monthan AFB AZ	355 CES
Fairchild AFB WA	92 CES
Sheppard AFB TX	366 TRS

The resulting JI contains a comprehensive listing of 610 tasks grouped under 20 duty headings, and a background section requesting such information as grade, base, MAJCOM assigned, organizational level, component status, job title, functional area, vehicles operated, and equipment maintained or used; as well as standby duty days, number of exercises, and TDY days.

Survey Administration

From January-April 1999, base training offices at operational units worldwide administered the inventory to eligible AFSC 3E0X1 personnel. Job incumbents were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Personnel Center, Randolph AFB TX. Each individual who completed the inventory first completed an identification and biographical information section and then checked each task performed in his or her current job. After checking all tasks performed, each member then rated each of these tasks on a 9-point scale, showing relative time spent on that task, as compared to all other tasks checked. The ratings ranged from 1 (very small amount time spent) through 5 (about average time spent) to 9 (very large amount time spent). To determine relative time spent for each task checked by a respondent, all of the incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100 to provide a relative percentage of time for each task.

This procedure compares tasks in terms of both percent members performing and average percent time spent.

Survey Sample

Personnel were selected to participate in this survey so as to ensure an accurate representation across major commands (MAJCOMs) and military paygrade groups. All eligible AD, ANG, and AFRC AFSC 3E0X1 personnel were mailed survey disks. The 1,488 respondents in the final sample represent 50 percent of the total assigned personnel as of December 1998 and 56 percent of the total personnel surveyed. Table 1 reflects the percentage distribution, by MAJCOM, of assigned AFSC 3E0X1 personnel. Table 2 reflects the paygrade distribution for these AFSC 3E0X1 personnel.

TABLE 1
COMMAND DISTRIBUTION OF AFSC 3E0X1 PERSONNEL

COMMAND	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
ACC	13	13
AETC	6	8
AFMC	8	10
AFSOC	1	1
AFSPC	4	5
AIA	1	1
AMC	8	9
PACAF	8	8
USAFE	5	7
ANG	30	25
AFRC	14	11
OTHER	2	2

TOTAL ASSIGNED* = 2,978

TOTAL SURVEYED** = 2,661

TOTAL IN SURVEY SAMPLE = 1,488

PERCENT OF ASSIGNED IN SAMPLE = 50%

PERCENT OF SURVEYED IN SAMPLE = 56%

* Assigned strength as of December 1998

** Excludes personnel in PCS, student, or hospital status, or less than 6 weeks on the job

TABLE 2
PAYGRADE DISTRIBUTION OF SURVEY SAMPLE

GRADE	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
E-1 - E-2	3	2
E-3	13	14
E-4	26	26
E-5	28	29
E-6	20	18
E-7	10	10
E-8	0	1

* Assigned strength as of December 1998

Paygrade distributions of the survey sample are close to the percent assigned. This indicates the sample is a true representation of the career ladder population. Command distribution is slightly skewed toward AD participation, a typical outcome for Air Force occupational surveys. Distribution of the AD share of the sample is reasonably representative of their command assignment.

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. To obtain the needed task factor data, selected senior AFSC 3E0X1 personnel (generally E-6 or E-7 craftsmen) also completed a second booklet for either training emphasis (TE) or task difficulty (TD). These booklets were processed separately from the JIs. This information is used in a number of different analyses discussed in more detail within the report.

Training Emphasis (TE): TE is a rating of the amount of emphasis that should be placed on tasks in entry-level training. The 56 senior NCOs who completed a TE booklet were asked to select tasks they felt require some sort of structured training for entry-level personnel and then indicate how much training emphasis these tasks should receive, from 1 (extremely low emphasis) to 9 (extremely high emphasis). Structured training is defined as training provided at resident training schools, field training detachments (FTD), mobile training teams (MTT), formal

on-the-job-training (OJT), or any other organized training method. Interrater agreement for these 56 raters was acceptable. The average TE rating was 2.81, with a standard deviation of 2.56. Any task with a TE rating of 5.37 or above is considered to have high TE.

Task Difficulty (TD): TD is an estimate of the amount of time needed to learn how to do each task satisfactorily. The 55 senior NCOs who completed TD booklets were asked to rate the difficulty of each task using a 9-point scale (extremely low to extremely high). Interrater reliability was acceptable. Ratings were standardized so tasks have an average difficulty of 5.00 and a standard deviation of 1.00. Any task with a TD rating of 6.00 or above is considered to be difficult to learn.

When used in conjunction with the primary criterion of percent members performing, TE and TD ratings can provide insight into first-enlistment personnel training requirements. Such insights may suggest a need for lengthening or shortening portions of instruction supporting entry-level jobs.

SPECIALTY JOBS

The first step in the analysis process is to identify the structure of the career ladder in terms of the jobs performed by the respondents. The Comprehensive Occupational Data Analysis Program (CODAP) assists by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on these tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, CODAP either adds new members to this initial group, or forms new groups based on the similarity of tasks and time spent ratings.

The basic group used in the hierarchical clustering process is the **Job**. When two or more jobs have a substantial degree of similarity in tasks performed and time spent on tasks, they are grouped together and identified as a **Cluster**. The structure of the career ladder is then defined in terms of jobs and clusters of jobs.

Overview of Specialty Jobs

Based on the analysis of tasks performed and the amount of time spent performing each task, three independent jobs and four clusters were identified within the career ladder. Figure 1 illustrates the jobs and clusters performed by AFSC 3E0X1 personnel.

A listing of these jobs and clusters is provided below. The stage (ST) number shown beside each title references computer printed information, the letter "N" indicates the number of personnel in each group.

- I. ELECTRICAL SYSTEMS CLUSTER (ST044, N=907)
 - A. Interior Electrician Job
 - B. Exterior Electrician Job
 - C. Lineman Job
 - D. Airfield Electrician Job
 - E. Mobility/Prime BEEF Job
- II. ALARMS JOB (ST106, N=40)
- III. ENTRY-LEVEL ELECTRICIAN CLUSTER (ST046, N=216)
 - A. Entry-Level General Electrician Job
 - B. Entry-Level Airfield Lighting Job
- IV. GUARD GENERAL SYSTEMS CLUSTER (ST023, N=30)
 - A. Guard Low-Voltage Job
 - B. Guard General Electrical Job
- V. RESERVE MOBILITY CLUSTER (ST053, N=22)
 - A. Reserve Mobility/Prime BEEF Job
 - B. Reserve Mobility Job
- VI. MANAGER JOB (ST060, N=152)
- VII. INSTRUCTOR JOB (ST064, N=43)
- VIII. NOT GROUPED (N=78)

The respondents forming these jobs and clusters account for 95 percent of the survey sample. The remaining 5 percent, for one reason or another, did not group into one of these jobs or clusters. Examples of job titles for these personnel include Command POC, Cathodic Engineer, JSIIDS Tech, Unit Safety, Self Help, Self Help Store, and Marking.

**AFSC 3E0X1 CAREER LADDER SPECIALTY JOBS
(N = 1488)**

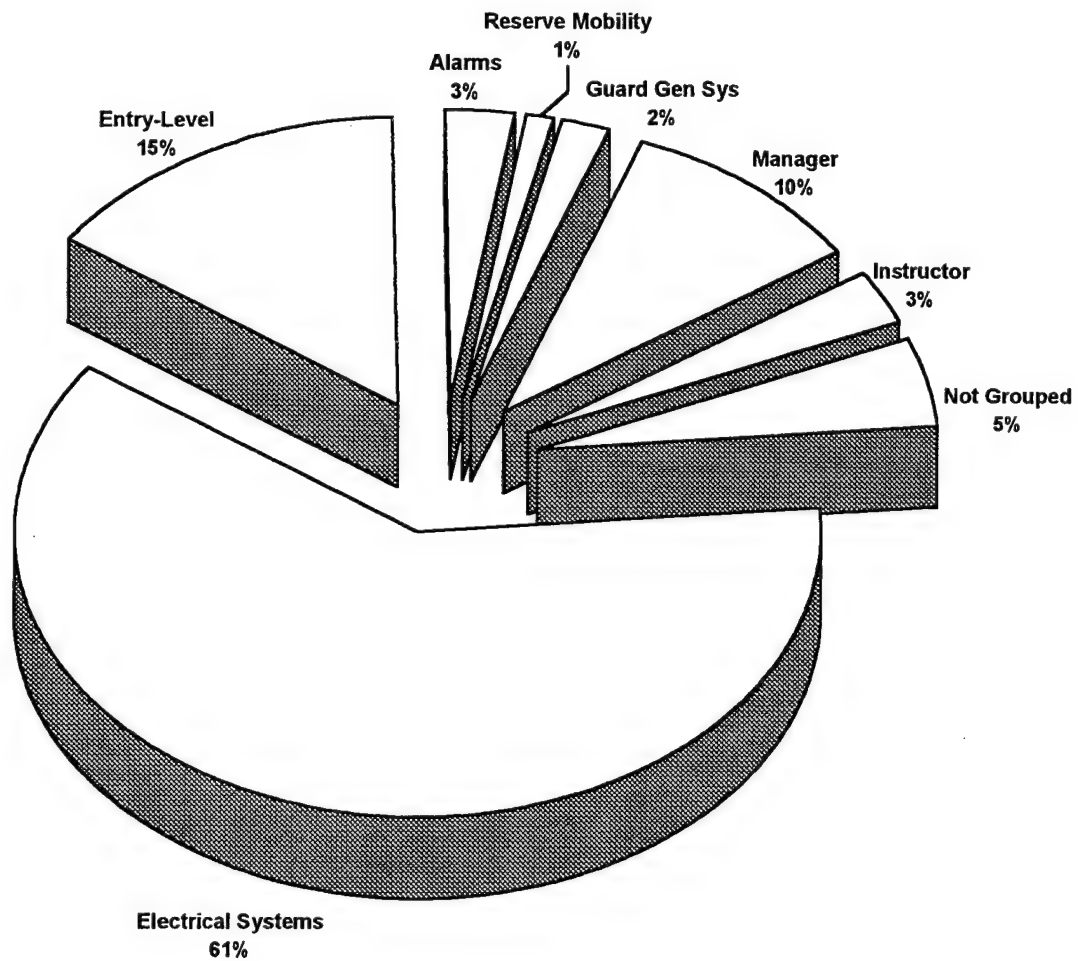


FIGURE 1

Group Descriptions

The following paragraphs contain brief descriptions of the jobs and clusters identified through the career ladder structure analysis. Table 3 presents the relative time spent on duties by members of these specialty jobs and clusters. Selected background data for these jobs and clusters are provided in Table 4. Representative tasks for all the groups are contained in Appendix A. Table 5 shows a job comparison between the current and 1996 surveys.

I. ELECTRICAL SYSTEMS CLUSTER (ST044). The 907 airmen performing within this cluster (61 percent of the survey sample) represent the core of the career ladder. They perform a broad range of electrical activities comprising the installation and maintenance of facility and outdoor lighting including emergency and airfield, poles with hardware and the overhead conductor, underground cables, appliances, motors and starters, and substation components. This cluster is divided into five jobs based on an emphasis on specialization of tasks, although all members perform many of the typical electrician tasks. The personnel in the Electrical Systems cluster are shown in Table 3 to perform activities encompassing electrician technical tasks (duties A-L), on average 62 percent of their time. Low-voltage and overhead systems are the lead technical duty areas taking up the members time. Mobility and contingency, Prime BEEF, and safety and first-aid activities account for well over half of the remaining 38 percent of their time. The average number of tasks performed by this group is 175, the highest of any other cluster or independent job, indicating the diversity of this core cluster. The most commonly performed tasks are from a large number of duty areas. Representative tasks include:

- Measure, cut, bend, fit, or attach electrical conduits
- Remove or install outdoor light fixtures
- Rewire lighting fixtures
- Remove or install outdoor light fixture components
- Perform or practice cardiopulmonary resuscitation (CPR)
- Perform or practice self-aid or buddy care procedures
- Troubleshoot outdoor lighting systems
- Measure, cut, thread, bend, or fit rigid conduits or pipes
- Route wires or cables, other than through conduits
- Move or install interior lighting fixtures
- Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof
- Remove or install outdoor lighting control components
- Remove or install ground fault current interrupter (GFCI) devices
- Perform equipment lock-out and tag-out procedures
- Inspect receptacles, junctions, switches, or switch boxes
- Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)
- Troubleshoot electrical control systems
- Bench check, service, or repair lighting fixtures

Fifty-three percent of these airmen hold the 5-skill level, with 25 percent at the 3-skill level and 22 percent at the 7-skill level. The predominant paygrades of this large cluster are E-4 (25 percent) and E-5 (32 percent). Sixty-one percent of these airmen are AD, averaging over 6 1/2 years in the career field and 7 1/4 years Total Active Federal Military Service (TAFMS.) Forty-five percent of the AD members are in their first enlistment.

There are five distinct jobs within this cluster that are separated by the type and frequency of the tasks performed. These jobs will be addressed because most have significant numbers of airmen and they represent the typical work of the 3E0X1 cadre. Tables providing the most frequently performed tasks performed by these job members are in Appendix B.

The **Interior Electrician Job (N=394)** is differentiated by the high percent of members performing the low-voltage activities of Duty E. This is the job in the Electrical Systems Cluster with the highest percentage of its members calling themselves interior electricians as opposed to any other job title and identifying their work area as the interior electrical shop. The tasks they spend the most time on deal with facility, outdoor, and emergency lighting; conduits, motors and starters, as well as mobility preparation and deployment. Half are supervisors, and almost all are 5-skill level or higher. More than half are ANG or AFRC. With an average of over 8 years of TAFMS these airmen have the greatest service tenure of any of the five jobs in the core cluster. They perform an average of 146 tasks.

The **Exterior Electrician Job (N=355)** is defined by the members highest percentage of time spent being the Duty C activities involving the installation and maintenance of overhead systems. The most common job title for members is exterior electrician and their most typical work area is high-voltage distribution systems. The tasks they spend the most time on involve airfield lights and current regulation; outdoor and facility lighting; the installation of poles (transportation, location, raising, crossarms, and equipment); and the stringing of overhead conductors. Although these are the most time intensive work areas it is notable that these exterior electricians perform a wide variety of tasks to include substation equipment, underground systems, alarms, and even motors and starters. In fact, members in this job perform an average of 243 tasks, the most of any job. These airmen are three-quarters AD, mostly 5-skill level, and mostly E-4 and E-5 in paygrade.

The **Lineman Job (N=75)** is similar to the exterior electrician job but much less intensive in the number of tasks performed. Although these members also have the Duty C overhead systems as the duty of heaviest concentration, they perform on average only 90 tasks. Most of the personnel dig holes and set poles, climb poles and hoist materials, drill bolt holes and install crossarm hardware. This is an entry-level exterior electrician job, half of its members are 3-skill level, and over two-thirds are paygrade E-4 or lower. They are mostly AD.

The **Airfield Electrician Job (N=16)** is a small job in the electrical systems cluster that is characterized by the large amount of time it members spend on Duty F, installing and maintaining airfield lighting systems. They inspect, remove, and install airfield lights, and troubleshoot circuits and controls. Almost all are AD, with 5-skill level predominant and half at the E-5 paygrade. Two-thirds supervise and on average these airfield electricians perform 120 tasks. While the

members in all other jobs in the 3E0X1 career field are distributed throughout the AF, exactly one-half of the personnel who grouped into this job are in the Pacific Air Forces.

The fifth and last job in this core cluster is the **Mobility/Prime BEEF Job (N=75)**. Even though this job is characterized by a large amount of time spent (about half) on the Duties N and O, mobility and contingency and prime base engineer emergency force activities, they do enough typical electrical work to join the other four jobs in this cluster. They title themselves fairly evenly among systems maintainers, interior electricians, and exterior electricians. Membership is half ANG and almost one-third AFRC. Most perform the tasks of firing and maintaining weapons, maintaining mobility kits and deployment clothing. They practice cover and concealment for work parties, and communications and operations security during contingency. They perform on average relatively few tasks (77).

II. ALARMS JOB (ST106). The 40 members of the independent alarms job (3 percent of the sample) are defined by the high percentage who perform the tasks of Duty K, installing or maintaining alarm systems and components. Ninety-three percent call themselves alarm system specialists or alarm system NCOICs, and all but one work in alarms shops. The airmen in this job perform tasks dealing with alarms, conduits, direct current, traffic control systems, sensors, and doors and gates. These alarms personnel are fairly specialized and on average perform only 63 tasks which include:

- Troubleshoot fire alarm systems
- Inspect, clean, or service fire alarm systems or components
- Remove or install fire alarm systems or components
- Remove or install intrusion alarm systems or components
- Troubleshoot intrusion alarm systems
- Inspect, clean, or service intrusion alarm systems or components
- Remove or install batteries
- Remove or install annunciator panels
- Solder electrical connections
- Inspect, clean, or service batteries
- Test warning alarm units or control systems for opens, shorts, or grounds
- Analyze drawings, schematics, or specifications for equipment installations

They are split between 3- and 5- skill levels and most are E-4 paygrade. Sixty percent are overseas in USAFE or PACAF. All are AD with an average TAFMS of 5 years and 9 months.

III. ENTRY-LEVEL ELECTRICIAN CLUSTER (ST046). The 216 airmen performing within this cluster (15 percent of the survey sample) represent an early step of the career ladder in the Electrical Systems career field. They spend 32 percent of their time on Duty E, installing or maintaining low-voltage electrical power or lighting distribution systems activities, and 17 percent of their time on Duty A, general electrical systems activities. The major distinguishing

characteristic of this cluster is the low average number of tasks performed, only 46. Forty-five percent report interior electrician as their primary job title. Another 35 percent report their job title as electrical system maintainer. Only 14 percent call themselves exterior electricians. However, the entry-level exterior electricians are not missing. The lineman job in the core electrical system cluster is basically an entry-level job but with enough tasks performed to put it in that core cluster instead of this entry-level cluster. This cluster consists of two jobs, one job making up most of the cluster, and one that has an emphasis on airfield lighting. The most typical tasks performed by the personnel in this cluster are related to low-voltage systems, and include:

- Measure, cut, bend, fit, or attach electrical conduits
- Rewire lighting fixtures
- Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof
- Move or install interior lighting fixtures
- Inspect receptacles, junctions, switches, or switch boxes
- Remove or install ground fault current interrupter (GFCI) devices
- Measure, cut, thread, bend, or fit rigid conduits or pipes
- Test GFCI devices
- Remove or install outdoor light fixtures
- Troubleshoot facility lighting
- Route wires or cables, other than through conduits
- Remove or install distribution systems or branch circuits, other than explosion-proof
- Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)
- Remove or install outdoor light fixture components
- Bench check, service, or repair lighting fixtures
- Troubleshoot electrical control systems

Thirty-three percent of these airmen hold the 3-skill level, and 55 percent hold the 5-skill level. Fifty-six percent of these airmen are AD, averaging just over 3 years in the career field and under 4 years TAFMS. The predominant paygrade of this large cluster is E-4 (37 percent) with E-3 at 24 percent. It should be noted that 44 percent are ANG or AFRC and that members from these components, even if not entry-level personnel, often have restricted opportunities to perform tasks.

The **Entry-Level General Electrician Job (N=179)** has half of its members under the duty title of interior electrician. They have low paygrades and only perform an average of 45 tasks. Just under half of these airmen are in the ANG and AFRC components and almost all are CONUS.

The **Entry-Level Airfield Lighting Job (N=12)**, while much like the above entry-level general electrician job, is characterized by also having an airfield lighting component. They perform an average of 76 tasks. Most of these personnel are stationed overseas in USAFE.

IV. **GUARD GENERAL SYSTEMS CLUSTER (ST023)**. There are 30 airmen in the sample performing within this cluster (2 percent of the survey sample). Almost two-thirds are 5-skill level, with a predominate paygrade of E-4 (40 percent.) This cluster is 53 percent ANG and 20 percent AFRC. This cluster has several AD members who average less than 2 years Time In Career Field (TICF) and perform very few tasks. The personnel in the Guard General Systems cluster spend almost half their time on tasks in the general electrical systems Duty A activities (47 percent) with most of the remaining time on overhead and low-voltage distribution systems activities. Their primary work area is the electrical systems shop area. Their work is reasonably limited and they perform only 23 tasks on average. The most commonly performed tasks include:

- Measure, cut, bend, fit, or attach electrical conduits
- Measure, cut, thread, bend, or fit rigid conduits or pipes
- Route wires or cables, other than through conduits
- Analyze drawings, schematics, or specifications for equipment installations
- Perform operator maintenance on high-reach trucks with insulated bucket
- Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)
- Perform operator maintenance on line maintenance trucks
- Read service meters
- Solder electrical connections
- Climb poles
- Dig holes for poles or guy anchors using auger bits
- Measure, chisel, cut, or drill structures
- Perform or practice self-aid or buddy care procedures
- Fill holes or tamp earth around poles or guy anchors

There are two jobs, both few in numbers of members, within this cluster. The **Guard Low-Voltage Job (N=8)**, and the **Guard General Electrical Job (N=5)** are both very similar in the high percent of members performing the general electrical activities of Duty A and in the very small average number of tasks performed. They are distinguished primarily by the duties that take up the work time beyond general electrical activities. The Low-Voltage job members, do the tasks of the low-voltage Duty E, and the General Electrical members perform substation and overhead system tasks.

V. **RESERVE MOBILITY CLUSTER (ST053)**. The 22 airmen forming this Cluster (1 percent of the survey sample) perform an average of 24 tasks and are distinguished by component with 64 percent of the members in the AFRC. They are further defined by the 46 percent of their time spent performing the mobility and contingency tasks of Duty N (Table 3).

Although some of these members still perform some of the general electrical tasks of Duty A, the group as a whole is heavily weighted in the mobility, and Prime BEEF aspects of the career ladder. Typical tasks performed include:

- Fire weapons, such as M-16 rifles
- Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles
- Measure, cut, bend, fit, or attach electrical conduits
- Prepare personal clothing and equipment for deployment
- Don or doff chemical warfare personal protective clothing
- Inspect mobility bags or kits
- Identify chemical warfare agents
- Install or remove tent lighting
- Route wires or cables, other than through conduits
- Measure, cut, thread, bend, or fit rigid conduits or pipes
- Perform chemical warfare agent decontamination procedures
- Inspect receptacles, junctions, switches, or switch boxes
- Rewire lighting fixtures

The predominant paygrade of this job is E-4 at 32 percent, but E-5 and E-6 are each 27 percent. Seventy-seven percent are 5-skill level. All of these airmen are AFRC or ANG.

There are two jobs within the reserve Mobility Cluster. The **Reserve Mobility/Prime BEEF Job (N=10)** is distinguished by the 16 percent of time spent performing the second most time intensive Duty O, Prime Beef activities. The second most time consuming activities for the **Reserve Mobility Job (N=6)** are from the general electrical systems, Duty A, at 26 percent.

VII. MANAGER JOB (ST060). The 152 airmen in this job (10 percent of the survey sample) spend 33 percent of their time on the management and supervisory activities of Duty Q. Altogether, they spend a total of 75 percent of their time on the non-technical activities of Duties N through T. Forty-two percent title themselves as NCOICs. Another 14 percent have job titles such as inspectors, planners, evaluators, supervisors, managers, or superintendents. Also a further, seventeen percent do not have titles that fit the traditional framework. Tasks done by most members include:

- Counsel subordinates concerning personal matters
- Conduct supervisory performance feedback sessions
- Determine or establish work assignments or priorities
- Counsel trainees on training progress
- Write recommendations for awards or decorations
- Conduct supervisory orientations for newly assigned personnel
- Assign personnel to work areas or duty positions
- Inspect worksites

- Conduct on-the-job training (OJT)
- Write or indorse military performance reports
- Evaluate personnel for compliance with performance standards
- Determine training requirements
- Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace
- Interpret plans, sketches, wiring diagrams, or specification sheets for subordinates
- Interpret policies, directives, or procedures for subordinates

The predominant paygrade of this job is E-7 at 38 percent, with E-6 at 32 percent. Fifty-seven percent are 7-skill level. Most, 81 percent, are AD and these average 13 years 3 months in the career field and almost 15 years in the service. (Table 4.)

VII. INSTRUCTOR JOB (ST064). The 43 airmen forming this final job (3 percent of the survey sample) are distinguished by 36 percent of their time being spent performing training tasks in Duty R. Another 18 percent of their time is spent on management, administration, and equipment activities. This leaves a reasonably large amount of time credited to the performance of technical electrical activities, presumably as part of their instructional responsibilities. All but four are at Sheppard AFB and almost all conduct formal classroom training. They average 74 tasks performed, a large number for instructors. Representative tasks performed by these incumbents include:

- Conduct formal course classroom training
- Counsel trainees on training progress
- Personalize lesson plans
- Administer or score tests
- Develop or procure training materials or aids
- Maintain training records or files
- Brief personnel concerning training programs or matters
- Inspect training materials or aids for operation or suitability
- Develop training programs, plans, or procedures
- Evaluate effectiveness of training programs, plans, or procedures
- Develop written tests
- Conduct on-the-job training (OJT)
- Complete student entry or withdrawal forms

All but 2 of these airmen are AD and 91 percent belong to AETC. They average 10 years 8 months in the career field and over 11 years TAFMS. The predominant paygrade is E-5 (61 percent.) Seventy-seven percent hold the 5-skill level, and 23 percent the 7-skill level (Table 4).

Comparison to Previous Study

Table 5 lists the jobs/clusters identified in this report and compares them to the enlisted jobs of the 1996 report. Two clusters identified in this report, the Guard General Systems Cluster and the Reserve Mobility Cluster, did not match similar jobs in the previous report because ANG and AFRC were not surveyed in 1996, although 360 civilians were. Also, the previous report did not find the entry-level cluster of the current report. Otherwise there was great similarity except some clusters in the previous survey were accepted as jobs in the current report. The current lineman job, a simplified version of exterior electrician, did not separate out in 1996; and the cathodic protection job of 6 military members in the 1996 report did not fall out in the current analysis. These differences are minor and not indicative of any significant change in the career field.

TABLE 3

RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS

DUTIES	Electrical Systems Cluster (ST 44) (N=907)	Alarms Job (ST 106) (N=40)	Entry Level Electrician Cluster (ST 46) (N=216)	Grd Gen Systems Cluster (ST 23) (N=30)	Reserve Mobility Cluster (ST 53) (N=22)	Manager Job (ST 60) (N=152)	Instructor Job (ST 64) (N=43)
A	8	14	17	47	16	6	7
B	2	0	1	3	0	0	1
C	11	0	1	16	2	1	15
D	6	1	2	2	1	1	3
E	14	3	32	10	9	7	6
F	5	0	2	2	3	0	0
G	4	1	6	1	1	1	1
H	2	1	2	0	0	1	2
I	2	0	1	2	0	1	0
J	7	18	5	1	0	2	1
K	1	24	1	0	0	2	1
L	0	1	0	0	0	0	0
M	4	3	4	4	6	3	7
N	13	15	15	5	46	12	2
O	5	5	3	5	10	3	1
P	2	4	1	0	0	8	0
Q	7	5	3	2	1	33	9
R	3	2	1	0	2	9	36
S	1	1	1	0	1	5	5
T	3	2	2	0	2	5	4

TABLE 4

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS

	Electrical Systems Cluster (ST 44)	Alarms Job (ST 106)	Entry-Lvl Electrician Cluster (ST 46)	Guard Gen Systems Cluster (ST 23)	Reserve Mobility Cluster (ST 53)	Manager Job (ST 60)	Instructor Job (ST 64)
NUMBER IN GROUP	907	40	216	30	22	160	43
PERCENT OF SAMPLE	61	3	15	2	1	10	3
PERCENT IN CONUS	85	60	80	83	91	66	91
DAFSC DISTRIBUTION:							
4F031	25	45	33	20	5	3	0
4F051	53	52	55	63	77	36	77
4F071	22	3	12	17	18	57	23
4F091	0	0	0	0	0	4	0
1C100	0	0	0	0	0	0	0
COMPONENT STATUS:							
ACTIVE DUTY	61	100	56	27	0	81	95
AIR FORCE RESERVE COMMAND	11	0	12	20	64	9	0
AIR NATIONAL GUARD	28	0	32	53	36	10	5
PAYGRADE DISTRIBUTION:							
E-1 - E-3	18	20	28	24	9	2	0
E-4	25	55	37	40	32	5	16
E-5	32	20	21	20	27	20	61
E-6	18	5	13	13	27	32	16
E-7	7	0	1	3	0	38	7
E-8	0	0	0	0	5	3	0
E-9	0	0	0	0	0	0	0
AVERAGE MONTHS IN CAREER FIELD *	78	62	38	23	**	159	128
AVERAGE MONTHS IN SERVICE *	87	69	45	37	**	179	135
PERCENT IN FIRST ENLISTMENT (1-48 MOS TAFMS) *	45	56	71	76	**	3	0
PERCENT SUPERVISING	42	22	19	33	14	89	44
AVERAGE NUMBER OF TASKS PERFORMED	175	63	46	23	24	110	74

*Active Duty Only

** No Active Duty in this Cluster

TABLE 5

SPECIALTY JOB COMPARISON BETWEEN CURRENT AND 1996 SURVEYS

CURRENT SURVEY (N=1488)	1996 SURVEY (N=1569)
I. Electrical Systems Cluster	
a. Interior Electrician	I. Interior Lighting Cluster
b. Exterior Electrician	V. Exterior Lighting Cluster
c. Lineman	
d. Airfield Electrician	VI. Airfield Lighting System Job
e. Mobility/Prime BEEF	II. Contingency Job
II. Alarms Job	III. Alarm Systems Cluster
III. Entry-Level Electrician Cluster	
a. Entry-Level General Electrician	
b. Entry-Level Airfield Lighting	
IV. Guard General Systems Cluster	
a. Guard Low-Voltage	
b. Guard General Electrical	
V. Reserve Mobility Cluster	
a. Reserve Mobility/Prime BEEF	VIII. Management Cluster and VII. Planner Job
b. Reserve Mobility	IX. Instructor Job
IV. Manager Job	IV. Cathodic Protection Job
VII. Instructor Job	
Not Matched	

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as the AFMAN 36-2108 *Airman Classification*, Specialty Description and the Career Field Education and Training Plan (CFETP), reflect what career ladder personnel are actually doing in the field.

ACTIVE DUTY DAFSC

The distribution of AD skill-level groups across the career ladder jobs and clusters is displayed in Table 6, while Table 7 offers another perspective by displaying the relative percent time spent on each duty across skill-level groups. A more-or-less typical pattern of progression for large career fields is noted within the AFSC 3E0X1 career ladder. Personnel at the 3 levels work in the technical jobs of the career ladder and spend most of their time on technical tasks. As incumbents advance to the 5-skill level they begin to perform supervisory tasks, but still spend most of their time performing the technical tasks of the career ladder. At the 7-skill level, individuals have moved further away from the technical tasks and are performing more supervisory and management functions.

Skill-Level Descriptions

DAFSC 3E031 Representing 22 percent of the survey sample, these 333 AD airmen perform an average of 123 tasks. Two-thirds of this group work in the Electrical Systems Cluster (Table 6), with 20 percent performing in the Entry-Level Electrician Cluster and 5 percent in the Alarms job.

Table 7 reflects the percent time spent on duties by DAFSC 3E031 AD personnel. Seventy-six percent of their time is distributed among the technical tasks of the mostly "install and maintain" Duties A-L. Representative tasks performed by these members are listed in Table 8.

DAFSC 3E051 The 458 members of this AD group account for 31 percent of the survey sample and represent the core of the career ladder. Fifty-nine percent work in the technical Electrical Systems Cluster (Table 6) and 58 percent of work time for these AD 5-skill level airmen is spent on the technical electrician duties (Table 7). These members perform an average of 144 tasks.

Table 9 lists representative tasks performed by these DAFSC 3E051 personnel. Table 10 reflects those tasks which best differentiate the AD 3-skill levels from the AD 5-skill levels. There are no tasks that the 3-skill levels are reasonably more likely to perform than the 5-skill

levels so there are no positive differences to report in Table 10. However, the 5-skill levels perform additional tasks not performed by very many at the 3-skill level (the negative differences) in the management, supervisory, and training areas.

DAFSC 3E071 These 156 AD members perform an average of 145 tasks and represent 10 percent of the survey sample. Table 6 shows the highest percent of members are in the Managers Cluster at 45 percent. Table 7 gives the time spent on duties and reinforces the decreasing technical share and increasing management share of the 7 skill-level responsibilities. None-the-less, the average of 30 percent of time spent on technical electrician duties shows that this AD group still performs the core tasks of this career field. Table 11 gives those tasks done by the most members. Table 12 reflects tasks which best differentiate between 5- and 7-skill levels. This table clearly shows the much higher devotion to management tasks such as budget, policy, inspection, and evaluation of disrupted work schedules at the 7-skill level than the 5-skill level.

TABLE 6

DISTRIBUTION OF AD SKILL LEVEL DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS
(PERCENT RESPONDING)

SPECIALTY JOBS	ACTIVE		
	3E031 (N=333)	3E051 (N=458)	3E071 (N=156)
I. ELECTRICAL SYSTEMS CLUSTER	67	59	37
II. ALARMS JOB	5	5	1
III. ENTRY-LEVEL ELECTRICIAN CLUSTER	20	11	1
IV. GUARD GENERAL SYSTEMS CLUSTER	2	0	0
V. RESERVE MOBILITY CLUSTER	0	0	0
VI. MANAGERS JOB	2	11	45
VII. INSTRUCTOR JOB	0	7	5
NOT GROUPED	4	7	13

TABLE 7

RELATIVE PERCENT TIME SPENT ON DUTIES BY AD SKILL LEVEL DAFSC GROUPS

DUTIES	ACTIVE 3E031 (N=333)	ACTIVE 3E051 (N=458)	ACTIVE 3E071 (N=156)
A PERFORMING GENERAL ELECTRICAL SYSTEMS ACTIVITIES	12	9	6
B INSTALLING OR MAINTAINING SUBSTATION EQUIPMENT	2	2	1
C INSTALLING OR MAINTAINING OVERHEAD SYSTEMS	12	9	4
D INSTALLING OR MAINTAINING UNDERGROUND SYSTEMS	6	5	3
E INSTALLING OR MAINTAINING LOW-VOLTAGE ELECTRICAL POWER OR LIGHTING DISTRIBUTION SYSTEMS	18	14	7
F INSTALLING OR MAINTAINING AIRFIELD LIGHTING SYSTEMS	6	4	2
G INSTALLING OR MAINTAINING OUTDOOR LIGHTING SYSTEMS	5	3	1
H INSTALLING OR MAINTAINING MOTORS	2	2	1
I INSTALLING OR MAINTAINING GROUND SYSTEMS	1	1	1
J INSTALLING OR MAINTAINING ELECTROMECHANICAL SYSTEMS, EQUIPMENT, APPLIANCES, AND DEVICES	8	6	3
K INSTALLING OR MAINTAINING ALARM SYSTEMS AND COMPONENTS	3	3	1
L INSPECTING OR MAINTAINING CATHODIC PROTECTION SYSTEMS	1	1	*
M PRACTICING SAFETY OR RENDERING FIRST AID	4	4	3
N PERFORMING MOBILITY AND CONTINGENCY ACTIVITIES	10	9	9
O PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	3	3	3
P PERFORMING WORK INFORMATION MANAGEMENT SYSTEM (WIMS) ACTIVITIES	1	3	7
Q PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	3	11	29
R PERFORMING TRAINING ACTIVITIES	1	6	10
S PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1	2	5
T PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1	3	4

* less than 1 percent

TABLE 8

REPRESENTATIVE TASKS PERFORMED BY AD 3E031 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=333)
A0003	Clean shop or storage facilities	92
A0012	Measure, cut, bend, fit, or attach electrical conduits	88
E0181	Rewire lighting fixtures	76
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	76
G0235	Remove or install outdoor light fixtures	73
E0179	Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	71
A0021	Route wires or cables, other than through conduits	70
G0234	Remove or install outdoor light fixture components	70
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	69
M0338	Perform or practice self-aid or buddy care procedures	69
N0355	Fire weapons, such as M-16 rifles	69
E0170	Move or install interior lighting fixtures	68
E0167	Inspect receptacles, junctions, switches, or switch boxes	65
E0177	Remove or install ground fault current interrupter (GFCI) devices	65
G0237	Troubleshoot outdoor lighting systems	65
E0184	Troubleshoot electrical control systems	64
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	63
A0019	Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	61
G0231	Adjust light fixtures, including streetlights or recreational light fixtures, other than airfield light fixtures	61
E0183	Test GFCI devices	59
M0331	Perform equipment lock-out and tag-out procedures	59
E0188	Troubleshoot facility lighting	58
E0157	Bench check, service, or repair lighting fixtures	58
G0236	Remove or install outdoor lighting control components	57
E0186	Troubleshoot electrical distribution systems, other than in hazardous locations	55
G0233	Clean light fixture reflectors or lenses, other than on airfield light fixtures	55
E0171	Remove or install distribution systems or branch circuits, other than explosion-proof	54
A0001	Analyze drawings, schematics, or specifications for equipment installations	54
C0053	Climb poles	54
N0394	Prepare personal clothing and equipment for deployment	53
A0011	Measure, chisel, cut, or drill structures	52
E0160	Inspect distribution panels	52
D0122	Dig trenches using hand equipment	52
E0174	Remove or install equipment grounds	51
J0281	Remove or install AC equipment	50
N0388	Perform recall procedures	50

* Average Number of Tasks Performed - 123

TABLE 9
REPRESENTATIVE TASKS PERFORMED BY AD 3E051 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=458)
A0003	Clean shop or storage facilities	86
A0012	Measure, cut, bend, fit, or attach electrical conduits	80
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	77
M0338	Perform or practice self-aid or buddy care procedures	71
N0355	Fire weapons, such as M-16 rifles	70
E0181	Rewire lighting fixtures	69
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	69
A0001	Analyze drawings, schematics, or specifications for equipment installations	67
A0021	Route wires or cables, other than through conduits	66
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	66
G0235	Remove or install outdoor light fixtures	65
M0331	Perform equipment lock-out and tag-out procedures	64
R0538	Conduct on-the-job training (OJT)	63
A0019	Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	63
N0388	Perform recall procedures	63
E0179	Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	62
G0237	Troubleshoot outdoor lighting systems	62
G0234	Remove or install outdoor light fixture components	61
E0170	Move or install interior lighting fixtures	60
E0177	Remove or install ground fault current interrupter (GFCI) devices	60
N0394	Prepare personal clothing and equipment for deployment	60
E0157	Bench check, service, or repair lighting fixtures	59
E0167	Inspect receptacles, junctions, switches, or switch boxes	57
E0184	Troubleshoot electrical control systems	57
G0236	Remove or install outdoor lighting control components	57
A0011	Measure, chisel, cut, or drill structures	56
N0352	Don or doff chemical warfare personal protective clothing	56
E0171	Remove or install distribution systems or branch circuits, other than explosion-proof	55
M0339	Perform safety supervision of personnel working on energized circuits	55
N0357	Inspect mobility bags or kits	55
E0188	Troubleshoot facility lighting	54
E0160	Inspect distribution panels	54
E0186	Troubleshoot electrical distribution systems, other than in hazardous locations	53
O0423	Install or remove tent lighting	53
R0539	Counsel trainees on training progress	52
P0446	Access work information management system (WIMS) menus and data screens	52

* Average Number of Tasks Performed - 144

TABLE 10

TASKS WHICH BEST DIFFERENTIATE BETWEEN
AD DAFSCs 3E031 AND 3E051 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	ACTIVE			DIFF
	DAFSC 3E031 (N=333)	DAFSC 3E051 (N=458)	ACTIVE	
R0539	5	52		-47
Q0482	6	49		-43
Q0478	3	45		-42
R0538	22	63		-41
R0551	9	47		-38
Q0531	1	39		-38
Q0530	2	41		-38
R0535	4	40		-36
R0540	3	37		-34
Q0515	7	39		-33
Q0507	5	38		-33
Q0477	4	36		-32
R0534	2	33		-31
Q0514	14	44		-30
P0446	22	52		-30
R0543	3	31		-28
Q0484	11	39		-28
Q0498	4	31		-27
T0592	8	34		-26
Q0483	10	35		-26
Q0513	17	43		-26
Q0472	6	33		-26
Q0531	1	25		-24

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY AD 3E071 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=156)
Q0482	Counsel subordinates concerning personal matters	83
Q0478	Conduct supervisory performance feedback sessions	82
Q0531	Write recommendations for awards or decorations	80
Q0530	Write or indorse military performance reports	79
A0001	Analyze drawings, schematics, or specifications for equipment installations	76
R0539	Counsel trainees on training progress	74
Q0477	Conduct supervisory orientations for newly assigned personnel	73
Q0513	Inspect worksites	72
R0551	Maintain training records or files	72
Q0484	Determine or establish work assignments or priorities	71
Q0483	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	70
Q0515	Interpret policies, directives, or procedures for subordinates	70
Q0507	Evaluate personnel for compliance with performance standards	69
R0535	Brief personnel concerning training programs or matters	69
R0540	Determine training requirements	69
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	69
R0538	Conduct on-the-job training (OJT)	68
Q0514	Interpret plans, sketches, wiring diagrams, or specification sheets for subordinates	67
A0005	Conduct on-site investigations of proposed work to determine resource requirements	66
Q0472	Assign personnel to work areas or duty positions	65
S0580	Research information in National Electrical Code (NEC)	63
Q0481	Coordinate work activities with appropriate sections or agencies	63
Q0498	Establish performance standards for subordinates	63
N0388	Perform recall procedures	63
M0338	Perform or practice self-aid or buddy care procedures	63
P0446	Access work information management system (WIMS) menus and data screens	62
Q0489	Develop or establish work schedules	62
N0355	Fire weapons, such as M-16 rifles	62
Q0510	Initiate actions required due to substandard performance of personnel	61
Q0474	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	60
Q0503	Evaluate job hazards or compliance with Air Force Occupational Safety and Health (AFOSH) program	60
Q0473	Assign sponsors for newly assigned personnel	60
Q0475	Conduct self-inspections or self-assessments	59
Q0471	Assign maintenance and repair work	58
Q0488	Develop or establish work methods or procedures	58
Q0512	Inspect quality of completed repairs	57
Q0509	Implement safety or security programs	57

* Average Number of Tasks Performed - 145

TABLE 12

TASKS WHICH BEST DIFFERENTIATE BETWEEN
AD DAFSCs 3E051 AND 3E071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	ACTIVE DAFSC 3E051 (N=458)	ACTIVE DAFSC 3E071 (N=156)	DIFF
A0003 Clean shop or storage facilities	86	49	36
A0012 Measure, cut, bend, fit, or attach electrical conduits	80	47	34
E0181 Rewire lighting fixtures	69	40	29
G0235 Remove or install outdoor light fixtures	65	36	29
A0021 Route wires or cables, other than through conduits	66	38	29
A0019 Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	63	35	27
G0234 Remove or install outdoor light fixture components	61	34	27
E0179 Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	62	36	26
J0281 Remove or install AC equipment	47	21	26
E0177 Remove or install ground fault current interrupter (GFCI) devices	60	34	26
E0170 Move or install interior lighting fixtures	60	35	25
A0013 Measure, cut, thread, bend, or fit rigid conduits or pipes	69	44	25
Q0493 Draft budget requirements	1	32	-31
Q0515 Interpret policies, directives, or procedures for subordinates	39	70	-31
Q0513 Inspect worksites	43	72	-30
S0566 Maintain administrative files	14	42	-29
R0535 Brief personnel concerning training programs or matters	40	69	-29
Q0488 Develop or establish work methods or procedures	30	58	-28
Q0471 Assign maintenance and repair work	31	58	-28
Q0509 Implement safety or security programs	29	57	-28
R0547 Evaluate effectiveness of training programs, plans, or procedures	19	46	-27
Q0469 Analyze workload requirements	15	42	-27
Q0496 Establish inspection procedures	9	36	-27
Q0500 Evaluate delays or interruptions of work production schedules	14	42	-27

ANG DAFSC

Skill-Level Descriptions

The distribution of ANG skill level groups across the Electrical Systems clusters and jobs is provided in Table 13. There are enough 9-skill levels to report but not enough 3-skill levels. The ANG members are found primarily in the core Electrical Systems Cluster with a 50 percent appearance in the Managers Job at the 9-skill level. Table 14 shows the relative time spent on the 20 duties. Although the technical duties remain significant across the skill levels (61, 51, and 32 percent for 5-, 7-, and 9-skill level), there is a steady increase in time spent on management, and training duties (from 5 to 16 to 32 percent) as the ANG members progress from the 5-skill level to the 9-skill level .

DAFSC 3E051 The 223 ANG 5-skill level members are shown in Table 13 to be in the 2 specialty jobs of Electrical Systems (66 percent) and Entry-Level Electrician (22 percent). They are most likely to spend their time performing the mobility and contingency tasks of Duty N and the low-voltage tasks of Duty E (Table 14.) Table 15 provides tasks performed by the most members.

DAFSC 3E071 There are 143 ANG 7-skill level members and they are found in the same 2 jobs as the 5-skill level airmen but with a reduced percent in the Entry-Level cluster. Table 16 provides representative tasks which are similar to the 5-skill level tasks. Table 17 makes this point even more clearly by listing those tasks that best differentiate the 7- from the 5-skill levels. The lack of positive differences in the table shows that the 7-skill levels do all the tasks the 5-skill levels do and in addition are much more likely to perform the management and training tasks of Duties Q and R.

DAFSC 3E091 Table 13 shows the 6 ANG 9-skill level airmen fall half in the Electrical Systems cluster and 19 by their coordination with outside agencies, compliance to AF and National standards, and implementation of programs.

TABLE 13

DISTRIBUTION OF ANG SKILL LEVEL DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS
(PERCENT RESPONDING)

<u>SPECIALTY JOBS</u>	ANG 3E051 (N=223)	ANG 3E071 (N=143)	ANG 3E091 (N=6)
I. ELECTRICAL SYSTEMS CLUSTER	66	73	50
II. ALARMS JOB	0	0	0
III. ENTRY-LEVEL ELECTRICIAN CLUSTER	22	13	0
IV. GUARD GENERAL SYSTEMS CLUSTER	5	2	0
V. RESERVE MOBILITY CLUSTER	3	1	0
VI. MANAGERS JOB	0	7	50
VII. INSTRUCTOR JOB	0	1	0
NOT GROUPED	4	3	0

TABLE 14

RELATIVE PERCENT TIME SPENT ON DUTIES BY ANG SKILL LEVEL DAFSC GROUPS

DUTIES		ANG 3E051 (N=223)	ANG 3E071 (N=143)	ANG 4F091 (N=6)
A	PERFORMING GENERAL ELECTRICAL SYSTEMS ACTIVITIES	14	9	6
B	INSTALLING OR MAINTAINING SUBSTATION EQUIPMENT	1	1	1
C	INSTALLING OR MAINTAINING OVERHEAD SYSTEMS	7	6	*
D	INSTALLING OR MAINTAINING UNDERGROUND SYSTEMS	4	4	1
E	INSTALLING OR MAINTAINING LOW-VOLTAGE ELECTRICAL POWER OR LIGHTING DISTRIBUTION SYSTEMS	19	16	12
F	INSTALLING OR MAINTAINING AIRFIELD LIGHTING SYSTEMS	3	2	
G	INSTALLING OR MAINTAINING OUTDOOR LIGHTING SYSTEMS	4	4	2
H	INSTALLING OR MAINTAINING MOTORS	1	2	2
I	INSTALLING OR MAINTAINING GROUND SYSTEMS	1	1	1
J	INSTALLING OR MAINTAINING ELECTROMECHANICAL SYSTEMS, EQUIPMENT, APPLIANCES, AND DEVICES	6	5	5
K	INSTALLING OR MAINTAINING ALARM SYSTEMS AND COMPONENTS	1	1	2
L	INSPECTING OR MAINTAINING CATHODIC PROTECTION SYSTEMS	*	*	
M	PRACTICING SAFETY OR RENDERING FIRST AID	5	4	5
N	PERFORMING MOBILITY AND CONTINGENCY ACTIVITIES	20	17	17
O	PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	6	7	6
P	PERFORMING WORK INFORMATION MANAGEMENT SYSTEM (WIMS) ACTIVITIES	*	1	1
Q	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	3	10	21
R	PERFORMING TRAINING ACTIVITIES	2	6	11
S	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1	1	3
T	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	2	3	4

* less than 1 percent

TABLE 15

REPRESENTATIVE TASKS PERFORMED BY ANG 3E051 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=223)	
A0012	Measure, cut, bend, fit, or attach electrical conduits	94
A0003	Clean shop or storage facilities	85
N0355	Fire weapons, such as M-16 rifles	80
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	79
N0357	Inspect mobility bags or kits	78
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	78
E0170	Move or install interior lighting fixtures	77
E0181	Rewire lighting fixtures	77
A0021	Route wires or cables, other than through conduits	75
E0167	Inspect receptacles, junctions, switches, or switch boxes	74
E0183	Test GFCI devices	74
E0179	Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	72
E0177	Remove or install ground fault current interrupter (GFCI) devices	71
G0235	Remove or install outdoor light fixtures	71
M0338	Perform or practice self-aid or buddy care procedures	70
G0234	Remove or install outdoor light fixture components	68
N0394	Prepare personal clothing and equipment for deployment	67
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	66
O0423	Install or remove tent lighting	66
E0188	Troubleshoot facility lighting	65
N0352	Don or doff chemical warfare personal protective clothing	62
N0356	Identify chemical warfare agents	62
A0019	Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	61
A0001	Analyze drawings, schematics, or specifications for equipment installations	61
G0237	Troubleshoot outdoor lighting systems	61
E0184	Troubleshoot electrical control systems	61
N0361	Install emergency airfield lighting systems (EALSs)	61
G0236	Remove or install outdoor lighting control components	58
E0160	Inspect distribution panels	57
C0053	Climb poles	56
M0331	Perform equipment lock-out and tag-out procedures	55
G0231	Adjust light fixtures, including streetlights or recreational light fixtures, other than airfield light fixtures	55
E0171	Remove or install distribution systems or branch circuits, other than explosion-proof	54
N0376	Perform chemical warfare agent decontamination procedures	54
E0174	Remove or install equipment grounds	53
E0157	Bench check, service, or repair lighting fixtures	52
E0186	Troubleshoot electrical distribution systems, other than in hazardous locations	51
E0168	Inspect service entrances or weatherheads	51
N0365	Install remote area lighting (RAL) sets	51

* Average Number of Tasks Performed - 107

TABLE 16

REPRESENTATIVE TASKS PERFORMED BY ANG 3E071 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=143)
N0355	Fire weapons, such as M-16 rifles	93
A0012	Measure, cut, bend, fit, or attach electrical conduits	92
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	85
E0179	Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	84
E0181	Rewire lighting fixtures	83
E0167	Inspect receptacles, junctions, switches, or switch boxes	83
E0170	Move or install interior lighting fixtures	81
N0357	Inspect mobility bags or kits	81
E0177	Remove or install ground fault current interrupter (GFCI) devices	81
O0423	Install or remove tent lighting	79
N0352	Don or doff chemical warfare personal protective clothing	77
N0394	Prepare personal clothing and equipment for deployment	77
M0338	Perform or practice self-aid or buddy care procedures	76
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	76
A0021	Route wires or cables, other than through conduits	76
G0235	Remove or install outdoor light fixtures	76
G0234	Remove or install outdoor light fixture components	76
N0356	Identify chemical warfare agents	75
A0003	Clean shop or storage facilities	74
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	74
N0361	Install emergency airfield lighting systems (EALSs)	74
G0237	Troubleshoot outdoor lighting systems	72
A0001	Analyze drawings, schematics, or specifications for equipment installations	72
E0183	Test GFCI devices	71
E0184	Troubleshoot electrical control systems	70
E0188	Troubleshoot facility lighting	69
E0157	Bench check, service, or repair lighting fixtures	68
A0019	Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	66
A0005	Conduct on-site investigations of proposed work to determine resource requirements	66
E0160	Inspect distribution panels	66
N0366	Install telescopic floodlight sets	66
R0538	Conduct on-the-job training (OJT)	65
A0011	Measure, chisel, cut, or drill structures	65
N0376	Perform chemical warfare agent decontamination procedures	64
R0539	Counsel trainees on training progress	63
N0365	Install remote area lighting (RAL) sets	63
M0331	Perform equipment lock-out and tag-out procedures	62

* Average Number of Tasks Performed - 140

TABLE 17

TASKS WHICH BEST DIFFERENTIATE BETWEEN
ANG DAFSCs 3E051 AND 3E071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	ANG DAFSC 3E051 (N=223)	ANG DAFSC 3E071 (N=143)	DIFF
R0539 Counsel trainees on training progress	13	63	-50
R0551 Maintain training records or files	17	55	-37
Q0472 Assign personnel to work areas or duty positions	10	48	-37
R0540 Determine training requirements	9	45	-36
Q0477 Conduct supervisory orientations for newly assigned personnel	6	42	-36
Q0507 Evaluate personnel for compliance with performance standards	7	41	-35
Q0484 Determine or establish work assignments or priorities	13	48	-35
Q0482 Counsel subordinates concerning personal matters	10	43	-33
Q0515 Interpret policies, directives, or procedures for subordinates	8	40	-32
R0538 Conduct on-the-job training (OJT)	33	65	-32
Q0483 Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	11	41	-30
Q0478 Conduct supervisory performance feedback sessions	3	34	-30
Q0510 Initiate actions required due to substandard performance of personnel	3	32	-29
R0535 Brief personnel concerning training programs or matters	11	41	-29
Q0471 Assign maintenance and repair work	10	38	-28
Q0514 Interpret plans, sketches, wiring diagrams, or specification sheets for subordinates	25	52	-27
A0005 Conduct on-site investigations of proposed work to determine resource requirements	39	66	-27
Q0489 Develop or establish work schedules	10	38	-27
Q0531 Write recommendations for awards or decorations	4	29	-26
R0542 Develop or procure training materials or aids	9	34	-25
Q0498 Establish performance standards for subordinates	2	27	-25
Q0512 Inspect quality of completed repairs	14	39	-25

TABLE 18

REPRESENTATIVE TASKS PERFORMED BY ANG 3E091 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=6)
Q0484	Determine or establish work assignments or priorities	100
R0538	Conduct on-the-job training (OJT)	100
Q0489	Develop or establish work schedules	100
R0539	Counsel trainees on training progress	100
S0580	Research information in National Electrical Code (NEC)	100
N0357	Inspect mobility bags or kits	100
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	100
N0355	Fire weapons, such as M-16 rifles	100
N0394	Prepare personal clothing and equipment for deployment	100
N0377	Perform contingency or wartime multiskilling tasks	100
R0540	Determine training requirements	83
Q0531	Write recommendations for awards or decorations	83
Q0513	Inspect worksites	83
M0338	Perform or practice self-aid or buddy care procedures	83
Q0514	Interpret plans, sketches, wiring diagrams, or specification sheets for subordinates	83
N0352	Don or doff chemical warfare personal protective clothing	83
A0007	Conduct safety inspections of equipment or facilities	83
A0005	Conduct on-site investigations of proposed work to determine resource requirements	83
N0390	Practice communications security (COMSEC) or operations security (OPSEC) during contingency exercises or operations	83
O0423	Install or remove tent lighting	83
M0331	Perform equipment lock-out and tag-out procedures	83
O0401	Assess or report base facility damage	83
N0361	Install emergency airfield lighting systems (EALSs)	83
A0001	Analyze drawings, schematics, or specifications for equipment installations	83
N0388	Perform recall procedures	83
N0374	Perform camouflage procedures	83
N0366	Install telescopic floodlight sets	83
N0360	Install contingency bare base power distribution systems	83
N0359	Install approach path indicators for contingency exercises or operations	83
E0158	Calculate facility power requirements	83
O0425	Install secondary distribution centers (SDCs)	83
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	83
Q0472	Assign personnel to work areas or duty positions	67
R0535	Brief personnel concerning training programs or matters	67
R0542	Develop or procure training materials or aids	67
R0551	Maintain training records or files	67
Q0478	Conduct supervisory performance feedback sessions	67
M0339	Perform safety supervision of personnel working on energized circuits	67
Q0483	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	67

* Average Number of Tasks Performed - 149

TABLE 19

TASKS WHICH BEST DIFFERENTIATE BETWEEN
ANG DAFSCs 3E071 AND 3E091 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	ANG DAFSC 3E071 (N=143)	ANG DAFSC 3E091 (N=6)	DIFF
C0053	48	*	48
A0012	92	50	42
C0060	41	*	41
C0105	38	*	38
N0379	50	17	33
D0155	32	*	32
C0062	31	*	31
D0151	31	*	31
C0091	31	*	31
J0281	48	17	31
C0064	29	*	29
I0253	29	*	29
F0190	28	*	28
Q0489	38	100	-62
N0342	10	67	-57
N0359	29	83	-55
Q0531	29	83	-54
E0158	29	83	-54
Q0484	48	100	-52
S0580	47	100	-52
T0584	22	67	-45
N0377	57	100	-43
Q0503	24	67	-42
Q0509	24	67	-42

AFRC DAFSC

The distribution of AFRC skill level groups across the Electrical Systems clusters and jobs is provided in Table 20. The AFRC members are found in the core Electrical Systems cluster and the Entry-Level Electrician cluster with an appearance in the Managers job at the 7-skill level. The responses of 59 7-skill level members grouped 12 percent in the Entry-Level cluster. Table 21 shows the relative time spent on the 20 Electrical Systems duties. Although the technical duties remain significant across the skill levels, there is a small increase in time spent on management, training and administrative duties (from 6 to 20 percent) as the AFRC members progress from the 5- to the 7-skill level. The mobility and contingency duty along with the Prime BEEF duty account for a significant amount of time spent at 32 percent for both the 5- and 7-skill level members.

Skill-Level Descriptions

DAFSC 3E051 The 98 AFRC 5-skill level members are shown in Table 20 to be mostly in the 2 specialty jobs of Electrical Systems and Entry-Level Electrician (61 and 16 percent). They are most likely to spend their time performing the activities of the mobility and contingency Duty N (Table 21.) Table 22 list the tasks performed by the most members.

DAFSC 3E071 There are 59 AFRC 7-skill level members and they are two-thirds in the Electrical Systems cluster (66 percent in Table 20.) Table 23 provides representative tasks done by most members. These are about half mobility and contingency tasks. Table 24 lists those tasks that best differentiate the 7- from the 5-skill levels. There were no tasks that 5-skill levels were much more likely to perform than the 7-skill levels, but the 7-skill levels are much more likely to perform supervisory and management tasks.

TABLE 20

DISTRIBUTION OF AFRC SKILL LEVEL DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)

<u>SPECIALTY JOBS</u>	<u>AFRC</u>	
	3E051 (N=98)	AFRC 3E071 (N=59)
I. ELECTRICAL SYSTEMS CLUSTER	61	66
II. ALARMS JOB	0	0
III. ENTRY-LEVEL ELECTRICIAN CLUSTER	16	12
IV. GUARD GENERAL SYSTEMS CLUSTER	4	3
V. RESERVE MOBILITY CLUSTER	11	5
VI. MANAGERS JOB	2	10
VII. INSTRUCTOR JOB	0	0
NOT GROUPED	6	4

TABLE 21

RELATIVE PERCENT TIME SPENT ON DUTIES BY AFRC SKILL LEVEL DAFSC GROUPS

DUTIES	AFRC 3E051 (N=98)		AFRC 4F071 (N=59)	
A	PERFORMING GENERAL ELECTRICAL SYSTEMS ACTIVITIES	13	10	
B	INSTALLING OR MAINTAINING SUBSTATION EQUIPMENT	2	1	
C	INSTALLING OR MAINTAINING OVERHEAD SYSTEMS	8	6	
D	INSTALLING OR MAINTAINING UNDERGROUND SYSTEMS	4	2	
E	INSTALLING OR MAINTAINING LOW-VOLTAGE ELECTRICAL POWER OR LIGHTING DISTRIBUTION SYSTEMS	13	13	
F	INSTALLING OR MAINTAINING AIRFIELD LIGHTING SYSTEMS	4	2	
G	INSTALLING OR MAINTAINING OUTDOOR LIGHTING SYSTEMS	3	2	
H	INSTALLING OR MAINTAINING MOTORS	1	1	
I	INSTALLING OR MAINTAINING GROUND SYSTEMS	1	1	
J	INSTALLING OR MAINTAINING ELECTROMECHANICAL SYSTEMS, EQUIPMENT, APPLIANCES, AND DEVICES	4	3	
K	INSTALLING OR MAINTAINING ALARM SYSTEMS AND COMPONENTS	1	*	
L	INSPECTING OR MAINTAINING CATHODIC PROTECTION SYSTEMS	*	*	
M	PRACTICING SAFETY OR RENDERING FIRST AID	4	4	
N	PERFORMING MOBILITY AND CONTINGENCY ACTIVITIES	26	23	
O	PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	7	9	
P	PERFORMING WORK INFORMATION MANAGEMENT SYSTEM (WIMS) ACTIVITIES	*	*	
Q	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	3	12	
R	PERFORMING TRAINING ACTIVITIES	2	6	
S	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1	2	
T	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	3	3	

* less than 1 percent

TABLE 22

REPRESENTATIVE TASKS PERFORMED BY AFRC 3E051 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=98)
A0012 Measure, cut, bend, fit, or attach electrical conduits	92
N0355 Fire weapons, such as M-16 rifles	84
N0399 Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	84
N0394 Prepare personal clothing and equipment for deployment	82
O0423 Install or remove tent lighting	73
E0170 Move or install interior lighting fixtures	73
E0181 Rewire lighting fixtures	72
E0167 Inspect receptacles, junctions, switches, or switch boxes	71
M0333 Perform or practice cardiopulmonary resuscitation (CPR)	71
A0013 Measure, cut, thread, bend, or fit rigid conduits or pipes	70
A0021 Route wires or cables, other than through conduits	70
A0003 Clean shop or storage facilities	69
M0338 Perform or practice self-aid or buddy care procedures	69
E0179 Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	68
N0357 Inspect mobility bags or kits	67
N0352 Don or doff chemical warfare personal protective clothing	67
N0356 Identify chemical warfare agents	66
N0376 Perform chemical warfare agent decontamination procedures	64
G0235 Remove or install outdoor light fixtures	64
N0361 Install emergency airfield lighting systems (EALSs)	64
A0019 Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	61
E0183 Test GFCI devices	61
G0234 Remove or install outdoor light fixture components	59
O0400 Assemble or lay AM-2 matting	57
E0177 Remove or install ground fault current interrupter (GFCI) devices	57
N0374 Perform camouflage procedures	57
O0445 Tear down bare base structures	56
G0237 Troubleshoot outdoor lighting systems	56
N0365 Install remote area lighting (RAL) sets	56
N0360 Install contingency bare base power distribution systems	55
N0390 Practice communications security (COMSEC) or operations security (OPSEC) during contingency exercises or operations	54
N0392 Practice self-protection from extreme weather	54
M0331 Perform equipment lock-out and tag-out procedures	54
E0174 Remove or install equipment grounds	53
N0366 Install telescopic floodlight sets	53
C0053 Climb poles	52
N0393 Prepare equipment for deployments, other than personal equipment	52
N0378 Perform cover and concealment techniques for work party security	52
N0379 Perform deployment processing	51

* Average Number of Tasks Performed - 114

TABLE 23

REPRESENTATIVE TASKS PERFORMED BY AFRC 3E071 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=59)	
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	92
O0423	Install or remove tent lighting	92
A0012	Measure, cut, bend, fit, or attach electrical conduits	90
N0355	Fire weapons, such as M-16 rifles	88
N0352	Don or doff chemical warfare personal protective clothing	85
N0394	Prepare personal clothing and equipment for deployment	83
N0356	Identify chemical warfare agents	81
N0357	Inspect mobility bags or kits	80
N0361	Install emergency airfield lighting systems (EALSs)	80
E0170	Move or install interior lighting fixtures	78
N0376	Perform chemical warfare agent decontamination procedures	76
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	76
E0167	Inspect receptacles, junctions, switches, or switch boxes	75
A0021	Route wires or cables, other than through conduits	75
M0338	Perform or practice self-aid or buddy care procedures	75
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	73
E0181	Rewire lighting fixtures	73
N0378	Perform cover and concealment techniques for work party security	73
O0445	Tear down bare base structures	73
N0360	Install contingency bare base power distribution systems	73
A0001	Analyze drawings, schematics, or specifications for equipment installations	71
N0377	Perform contingency or wartime multiskilling tasks	71
N0374	Perform camouflage procedures	71
R0538	Conduct on-the-job training (OJT)	69
A0005	Conduct on-site investigations of proposed work to determine resource requirements	69
E0179	Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	69
A0003	Clean shop or storage facilities	68
N0379	Perform deployment processing	68
N0375	Perform camp security	68
O0400	Assemble or lay AM-2 matting	68
M0331	Perform equipment lock-out and tag-out procedures	68
N0366	Install telescopic floodlight sets	68
N0390	Practice communications security (COMSEC) or operations security (OPSEC) during contingency exercises or operations	66
E0177	Remove or install ground fault current interrupter (GFCI) devices	66
N0388	Perform recall procedures	66
E0183	Test GFCI devices	66
N0392	Practice self-protection from extreme weather	66

* Average Number of Tasks Performed - 143

TABLE 24

TASKS WHICH BEST DIFFERENTIATE BETWEEN
AFRC DAFSCs 3E051 AND 3E071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	AFRC		AFRC		DIFF
	DAFSC	DAFSC	DAFSC	DAFSC	
	3E051	3E071	(N=98)	(N=59)	
Q0482	Counsel subordinates concerning personal matters	11	56	-45	
Q0478	Conduct supervisory performance feedback sessions	5	49	-44	
Q0484	Determine or establish work assignments or priorities	10	51	-41	
Q0472	Assign personnel to work areas or duty positions	10	51	-41	
Q0477	Conduct supervisory orientations for newly assigned personnel	10	51	-41	
N0388	Perform recall procedures	29	66	-38	
Q0483	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	9	47	-38	
Q0515	Interpret policies, directives, or procedures for subordinates	9	46	-37	
Q0512	Inspect quality of completed repairs	15	51	-36	
Q0513	Inspect worksites	21	58	-36	
Q0471	Assign maintenance and repair work	6	42	-36	
Q0473	Assign sponsors for newly assigned personnel	6	42	-36	
A0005	Conduct on-site investigations of proposed work to determine resource requirements	36	69	-34	
R0539	Counsel trainees on training progress	20	54	-34	
R0538	Conduct on-the-job training (OJT)	37	69	-32	
R0535	Brief personnel concerning training programs or matters	13	44	-31	
Q0507	Evaluate personnel for compliance with performance standards	11	42	-31	
O0401	Assess or report base facility damage	35	64	-30	
Q0530	Write or indorse military performance reports	5	36	-30	
O0414	Erect bare base structures	36	64	-29	
R0551	Maintain training records or files	27	56	-29	
R0540	Determine training requirements	14	42	-28	
Q0514	Interpret plans, sketches, wiring diagrams, or specification sheets for subordinates	22	51	-28	
Q0498	Establish performance standards for subordinates	3	31	-27	

ACTIVE DUTY/ANG/AFRC DAFSC

The distinguishing tasks that members of the three service components accomplish are shown in Tables 25-27 for the 5-skill level and in Tables 28-30 for the 7-skill level. At both skill levels the AD members are much more likely than the ANG or the AFRC members to perform the management and supervisory activities of Duty Q, and the Work Information Management System (WIMS) activities of Duty P. The AD members are also somewhat more likely to perform the training activities of Duty R and the general administrative activities of Duty S. The AFRC members are much more likely than AD and ANG members to perform mobility and contingency activities, Duty N, and Prime BEEF activities, Duty O.

TABLE 25

TASKS WHICH BEST DIFFERENTIATE BETWEEN
AD DAFSC 3E051 AND ANG DAFSC 3E051 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	AD		ANG		DIFF		
	DAFSC		DAFSC				
	3E051		3E051				
	(N=458)		(N=223)				
P0446	Access work information management system (WIMS) menus and data screens				52	2	50
Q0478	Conduct supervisory performance feedback sessions				45	3	42
R0539	Counsel trainees on training progress				52	13	39
Q0482	Counsel subordinates concerning personal matters				49	10	39
Q0530	Write or indorse military performance reports				41	4	37
N0388	Perform recall procedures				63	26	37
Q0531	Write recommendations for awards or decorations				39	4	36
P0447	Analyze WIMS data				35	3	33
Q0507	Evaluate personnel for compliance with performance standards				38	7	31
Q0515	Interpret policies, directives, or procedures for subordinates				39	8	31
R0534	Administer or score tests				33	2	31
Q0477	Conduct supervisory orientations for newly assigned personnel				36	6	30
N0357	Inspect mobility bags or kits				55	78	-24
E0183	Test GFCI devices				51	74	-23
O0400	Assemble or lay AM-2 matting				28	50	-21
N0376	Perform chemical warfare agent decontamination procedures				33	54	-20

TABLE 26

TASKS WHICH BEST DIFFERENTIATE BETWEEN
AD DAFSC 3E051 AND AFRC DAFSC 3E051 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	AD		AFRC		DIFF
	DAFSC	DAFSC	DAFSC	DAFSC	
	3E051 (N=458)	3E051 (N=98)	3E051 (N=98)	3E051 (N=98)	
K0315	Troubleshoot intrusion alarm systems	30	3	27	
P0446	Access work information management system (WIMS) menus and data screens	52	1	51	
Q0478	Conduct supervisory performance feedback sessions	45	5	40	
Q0482	Counsel subordinates concerning personal matters	49	11	38	
Q0530	Write or indorse military performance reports	41	5	36	
N0388	Perform recall procedures	63	29	34	
Q0531	Write recommendations for awards or decorations	39	5	34	
P0447	Analyze WIMS data	35	2	33	
R0539	Counsel trainees on training progress	52	20	32	
Q0515	Interpret policies, directives, or procedures for subordinates	39	9	30	
P0449	Clear or close out completed job orders in WIMS	34	4	30	
K0314	Troubleshoot fire alarm systems	35	6	29	
N0376	Perform chemical warfare agent decontamination procedures	33	64	-31	
O0400	Assemble or lay AM-2 matting	28	57	-29	
N0393	Prepare equipment for deployments, other than personal equipment	28	52	-24	
N0394	Prepare personal clothing and equipment for deployment	60	82	-22	
O0423	Install or remove tent lighting	53	73	-21	
N0356	Identify chemical warfare agents	45	66	-21	
O0422	Install or remove aircraft arresting systems	24	46	-21	
N0378	Perform cover and concealment techniques for work party security	32	52	-20	
N0383	Perform military field sanitation techniques	31	51	-20	
N0364	Install or maintain power supply to Harvest Falcon or Harvest Eagle kitchen equipment	31	50	-19	
O0445	Tear down bare base structures	37	56	-19	
O0424	Install polyurethane impregnated fiberglass mats (IFMs)	13	31	-18	

TABLE 27

TASKS WHICH BEST DIFFERENTIATE BETWEEN
ANG DAFSC 3E051 AND AFRC DAFSC 3E051 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	ANG DAFSC 3E051 (N=223)	AFRC DAFSC 3E051 (N=98)	DIFF
E0176 Remove or install explosion-proof receptacles, fixtures, or switches	47	28	19
K0314 Troubleshoot fire alarm systems	23	6	17
E0184 Troubleshoot electrical control systems	61	44	17
E0188 Troubleshoot facility lighting	65	49	16
J0218 Remove or install AC equipment	48	32	16
A0003 Clean shop or storage facilities	85	69	15
E0169 Measure or mark structures for installation of power or lighting systems	37	21	15
E0177 Remove or install ground fault current interruptor (GFCI) devices	71	57	14
K0310 Remove or install fire alarm systems or components	21	8	13
E0183 Test GFCI devices	74	61	13
E0166 Inspect or service interior power distribution systems	50	38	12
J0300 Troubleshoot electromechanical door systems	18	6	12
K0306 Inspect, clean, or service fire alarm systems or components	21	9	12
N0393 Prepare equipment for deployments, other than personal equipment	35	52	-17
N0390 Practice communications security (COMSEC) or operations security (OPSEC) during contingency exercises or operations	37	54	-17
F0205 Remove or install airfield light breakaway couplings	8	24	-16
N0389 Practice base denial techniques	23	40	-16
N0380 Perform disease or pestilence countermeasures	18	33	-15
N0379 Perform deployment processing	37	51	-14
N0383 Perform military field sanitation techniques	37	51	-14
N0394 Prepare personal clothing and equipment for deployment	67	82	-14
O0424 Install polyurethane impregnated fiberglass mats (IFMs)	16	31	-14
N0359 Install approach path indicators for contingency exercises or operations	21	34	-13
F0222 Repair airfield lighting cables	13	26	-13
A0016 Perform operator maintenance on line maintenance trucks	24	37	-13

TABLE 28

TASKS WHICH BEST DIFFERENTIATE BETWEEN
AD DAFSC 3E071 AND ANG DAFSC 3E071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	AD DAFSC 3E051 (N=458)		ANG DAFSC 3E051 (N=223)		DIFF
P0457	Input supply data in WIMS	37	1	36	
Q0530	Write or indorse military performance reports	79	15	63	
P0446	Access work information management system (WIMS) menus and data screens	62	1	61	
Q0531	Write recommendations for awards or decorations	80	29	51	
Q0526	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	57	8	49	
Q0478	Conduct supervisory performance feedback sessions	82	34	48	
S0567	Maintain computer files	53	6	48	
P0447	Analyze WIMS data	48	1	47	
S0563	Initiate or maintain standby rosters or workcenter pyramid recall rosters	54	9	45	
P0449	Clear or close out completed job orders in WIMS	51	6	45	
Q0482	Counsel subordinates concerning personal matters	83	43	39	
Q0470	Annotate time and attendance sheets for civilian employees	42	3	39	
Q0481	Coordinate work activities with appropriate sections or agencies	63	26	38	
E0179	Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	36	84	-48	
E0177	Remove or install ground fault current interrupter (GFCI) devices	34	81	-47	
E0170	Move or install interior lighting fixtures	35	81	-46	
A0012	Measure, cut, bend, fit, or attach electrical conduits	47	92	-45	
E0167	Inspect receptacles, junctions, switches, or switch boxes	40	83	-43	
E0181	Rewire lighting fixtures	40	83	-43	
G0234	Remove or install outdoor light fixture components	34	76	-42	
O0400	Assemble or lay AM-2 matting	16	58	-42	
E0183	Test GFCI devices	31	71	-41	
G0235	Remove or install outdoor light fixtures	36	76	-40	
A0021	Route wires or cables, other than through conduits	38	76	-38	
N0376	Perform chemical warfare agent decontamination procedures	28	64	-35	

TABLE 29

TASKS WHICH BEST DIFFERENTIATE BETWEEN
AD DAFSC 3E071 AND AFRC DAFSC 3E071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	AD DAFSC 3E071 (N=156)		AFRC DAFSC 3E071 (N=59)		DIFF
P0446	Access WIMS menus and data screens	62	5	57	
Q0531	Write recommendations for awards or decorations	80	29	51	
P0447	Analyze WIMS data	48	0	48	
P0449	Clear or close out completed job orders in WIMS	51	5	46	
Q0526	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	57	12	45	
Q0530	Write or indorse military performance reports	79	36	43	
S0567	Maintain computer files	53	12	41	
S0563	Initiate or maintain standby rosters or workcenter pyramid recall rosters	54	14	41	
Q0510	Initiate actions required due to substandard performance of personnel	61	20	41	
Q0481	Coordinate work activities with appropriate sections or agencies	63	24	40	
P0465	Update labor man-hours in WIMS	40	2	39	
Q0470	Annotate time and attendance sheets for civilian employees	42	5	37	
N0373	Pack or palletize mobility or contingency equipment for shipment or movement	27	49	-23	
N0388	Perform recall procedures	45	66	-21	
O0445	Tear down bare base structures	52	73	-21	
N0393	Prepare equipment for deployments, other than personal equipment	45	64	-20	
O0414	Erect bare base structures	45	64	-20	
Q0530	Write or indorse military performance reports	15	36	-20	
N0380	Perform disease or pestilence countermeasures	31	49	-18	
N0379	Perform deployment processing	50	68	-18	
N0382	Perform individual movement techniques for work party security	38	56	-18	
M0330	Interpret electrical facilities safe clearance forms	22	39	-17	
N0359	Install approach path indicators for contingency exercises or operations	29	46	-17	
N0383	Perform military field sanitation techniques	50	66	-16	

TABLE 30

TASKS WHICH BEST DIFFERENTIATE BETWEEN
ANG DAFSC 3E071 AND AFRC DAFSC 3E071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	ANG (N=143)		AFRC (N=59)		DIFF
	DAFSC 3E071		DAFSC 3E071		
E0176 Remove or install explosion-proof receptacles, fixtures, or switches	47		28		19
K0314 Troubleshoot fire alarm systems	23		6		17
E0184 Troubleshoot electrical control systems	61		44		17
E0188 Troubleshoot facility lighting	65		49		16
J0218 Remove or install AC equipment	48		32		16
A0003 Clean shop or storage facilities	85		69		15
E0169 Measure or mark structures for installation of power or lighting systems	37		21		15
E0177 Remove or install ground fault current interruptor (GFCI) devices	71		57		14
K0310 Remove or install fire alarm systems or components	21		8		13
E0183 Test GFCI devices	74		61		13
E0166 Inspect or service interior power distribution systems	50		38		12
J0300 Troubleshoot electromechanical door systems	18		6		12
K0306 Inspect, clean, or service fire alarm systems or components	21		9		12
O0400 Assemble or lay AM-2 matting	16		68		-52
O0423 Install or remove tent lighting	44		92		-48
N0376 Perform chemical warfare agent decontamination procedures	28		76		-48
O0445 Tear down bare base structures	26		73		-47
E0170 Move or install interior lighting fixtures	35		78		-43
A0012 Measure, cut, bend, fit, or attach electrical conduits	47		90		-43
N0375 Perform camp security	26		68		-42
N0378 Perform cover and concealment techniques for work party security	31		73		-42
N0361 Install emergency airfield lighting systems (EALSs)	39		80		-41
O0414 Erect bare base structures	23		64		-41
O0422 Install or remove aircraft arresting systems	19		59		-40
O0419 Identify bomb crater damages	10		49		-39

TRAINING ANALYSIS

Occupational survey data are one of many sources of information which can be used to assist in the development of a training program relevant to the needs of personnel in their first enlistment. Factors which may be used in evaluating training include: the overall description of the work being performed by first-enlistment personnel and their overall distribution across career ladder jobs, percentages of first-enlistment (1-48 months TAFMS) members performing specific tasks, as well as TE and TD ratings (previously explained in the **SURVEY METHODOLOGY** section).

First-Enlistment Personnel

In this study, there are 382 AD members in their first-enlistment (1-48 months TAFMS), representing 40 percent of the 947 AD members in the survey sample. Figure 2 reflects the distribution of first-enlistment personnel within the career ladder. First-enlistment personnel are primarily employed in the Electrical Systems Cluster.

Table 31 displays the relative percent of time spent on duties by first-enlistment personnel. Most of their duty time is spent on low-voltage power or lighting, general electrical, and overhead systems activities. Reviewing the table, first-enlistment personnel spend 77 percent of their time performing the technical tasks of Duties A-L and an additional 10 percent on mobility and contingency activities.

Table 32 lists representative tasks performed by first-enlistment personnel. Three-fourths of these most common tasks involve low-voltage power or lighting, general electrical, and overhead systems tasks of Duties A, E, and G.

Table 33 reflects the equipment and tools used by at least half of the AD first-enlistment respondents. This table shows a combination of meters and conduit fitting tools. Table 34 shows vehicles operated by first term airmen, primarily lifts and maintenance trucks. Finally, Table 35 lists systems and electromechanical equipment maintained. Lighting systems and controls are most common, but alarm systems are not uncommon.

**DISTRIBUTION OF 3E0X1 FIRST-ENLISTMENT PERSONNEL
ACROSS SPECIALTY JOBS
(N = 382)**

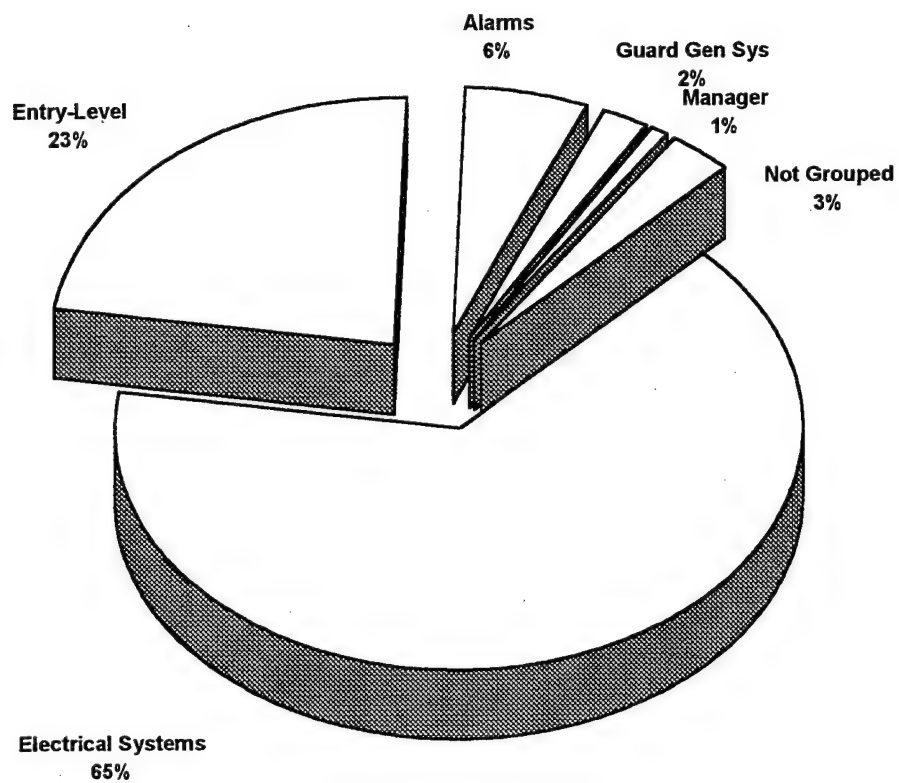


FIGURE 2

TABLE 31

RELATIVE PERCENT TIME SPENT ON DUTIES BY
FIRST-ENLISTMENT PERSONNEL
(N=382)

<u>DUTIES</u>	<u>PERCENT TIME SPENT</u>
A PERFORMING GENERAL ELECTRICAL SYSTEMS ACTIVITIES	12
B INSTALLING OR MAINTAINING SUBSTATION EQUIPMENT	2
C INSTALLING OR MAINTAINING OVERHEAD SYSTEMS	12
D INSTALLING OR MAINTAINING UNDERGROUND SYSTEMS	6
E INSTALLING OR MAINTAINING LOW-VOLTAGE ELECTRICAL POWER OR LIGHTING DISTRIBUTION SYSTEMS	19
F INSTALLING OR MAINTAINING AIRFIELD LIGHTING SYSTEMS	6
G INSTALLING OR MAINTAINING OUTDOOR LIGHTING SYSTEMS	5
H INSTALLING OR MAINTAINING MOTORS	2
I INSTALLING OR MAINTAINING GROUND SYSTEMS	1
J INSTALLING OR MAINTAINING ELECTROMECHANICAL SYSTEMS, EQUIPMENT, APPLIANCES, AND DEVICES	8
K INSTALLING OR MAINTAINING ALARM SYSTEMS AND COMPONENTS	3
L INSPECTING OR MAINTAINING CATHODIC PROTECTION SYSTEMS	1
M PRACTICING SAFETY OR RENDERING FIRST AID	4
N PERFORMING MOBILITY AND CONTINGENCY ACTIVITIES	10
O PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	3
P PERFORMING WORK INFORMATION MANAGEMENT SYSTEM (WIMS) ACTIVITIES	1
Q PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2
R PERFORMING TRAINING ACTIVITIES	1
S PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1
T PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1

TABLE 32

REPRESENTATIVE TASKS PERFORMED BY AFSC 3E0X1
FIRST-ENLISTMENT PERSONNEL
(N=382)

TASKS	PERCENT MEMBERS PERFORMING
A0003	92
A0012	88
A0013	77
E0181	76
G0235	72
E0179	71
M0338	70
A0021	69
G0234	69
M0333	69
N0355	69
E0170	68
E0167	65
E0177	65
G0237	65
E0184	63
A0019	63
E0183	61
N0399	61
E0188	60
G0231	59
M0331	59
E0157	57
A0001	57
G0236	57
E0171	54
E0186	54
A0011	53
N0394	53
G0233	53
E0160	52
C0053	52
J0281	51
E0174	51
D0122	50
E0161	50

* Average Number of Tasks Performed -124

TABLE 33

EQUIPMENT/TOOLS USED BY
FIRST-ENLISTMENT AFSC 3E0X1 PERSONNEL

EQUIPMENT	1ST ENL (N=382)
Multimeter	96
Ammeter, clamp-on	90
Tool, conduit bending hand	82
Tool, conduit cutting	81
Hydraulic knockout	78
Radio, two-way	75
Tool, crimping hand	73
Circuit tracer	73
Tool, conduit threading hand	66
Phase rotation meter	65
Megohmmeter	62
Voltage Indicator	60
Rubber gloves	58
Manlift, other than aerial lift vehicle	56
Tool, conduit bending hydraulic	53
Climbing gear	51
Stick, hot line	51
Tool, conduit threading power	51

TABLE 34

VEHICLES OPERATED BY
FIRST-ENLISTMENT AFSC 3E0X1 PERSONNEL

VEHICALS	1ST ENL (N=382)
Aerial lift vehicle or bucket truck	67
Truck, line maintenance, such as auger truck	58
Trencher	28
Forklift	26
Backhoe	15
Truck, dump	13
Front-end loader	12

TABLE 35

SYSTEM/ELECTROMECHANICAL EQUIPMENT MAINTAINED BY
FIRST-ENLISTMENT AFSC 3E0X1 PERSONNEL

EQUIPMENT	1ST ENL (N=382)
Emergency lighting system	65
Lighting system control, circuitry	60
Lighting protection system	48
Facility grounding system	47
Fire alarm system	37
Dining hall appliance or equipment	31
Automatic door control, circuitry	29
Intrusion alarm system	28
Static ground system	28
Motor control center, circuitry	27
Substation switchgear circuitry	27

Training Emphasis (TE) and Task Difficulty (TD) Data

TE and TD data are secondary factors that can assist technical school personnel in deciding which tasks should be emphasized in entry-level training. These ratings are based on the judgments of senior career ladder NCOs working at operational units in the field. They are collected to provide training personnel with a rank-ordering of those tasks in the JI considered important for first-enlistment personnel training (see Table 36 for the top-rated tasks) and with a measure of the difficulty of the JI tasks (see tasks presented in Table 37). When combined with data on the percentages of first-enlistment personnel performing tasks, comparisons can then be made to determine if training adjustments are necessary. For example, tasks receiving high ratings on both task factors, accompanied by moderate to high percentages performing, may warrant resident training. Those tasks receiving high task factor ratings, but low percentages performing, may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best omitted from training for first-enlistment personnel, but this decision must be weighed against percentages of personnel performing the tasks, command concerns, and criticality of the tasks.

To assist technical school personnel, AFOMS has developed a computer program that incorporates these secondary factors and the percentage of first-enlistment personnel performing each task to produce an Automated Training Indicator (ATI) for each task. These indicators correspond to training decisions listed and defined in the Training Decision Logic Table found in Attachment 2, AETCI 36-2601, and allows course personnel to quickly focus their attention on those tasks which are most likely to qualify for initial resident course consideration.

Table 36 presents tasks with the highest TE ratings and gives the percent of members performing for AFSC 3E0X1 first-job (1-24 months) and first-enlistment (1-48 months) airmen. Table 37 displays those tasks raters judged to be most difficult to learn. For example, TE raters (refer to Table 36) reported that tasks related to safety such as CPR, self-aid or buddy care, manhole, pole top, and aerial rescue, lock-out and tag-out, should have a high degree of training emphasis. About one-quarter to two-thirds of the airmen in their first job and within their first enlistment are practicing or performing these safety related tasks. Table 37 shows that many of the tasks selected by TD raters as the most difficult have low numbers of individuals performing, and except for some troubleshooting, have low training emphasis scores. These types of tasks might well be inappropriate for inclusion in a resident curriculum and be more appropriately taught as OJT items. However, tasks such as pole climbing, testing for opens, shorts or grounds, fitting conduits, tracing underground cable, setting poles and mounting transformers are performed by about 40 percent of first job airmen and rate consideration for formal training.

Various lists of tasks, accompanied by TE and TD ratings, and where appropriate, ATI information, are contained in the TRAINING EXTRACT package and should be reviewed in detail by training school personnel. (For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the **SURVEY METHODOLOGY** section of this report.)

TABLE 36

TASKS RATED HIGHEST IN TRAINING EMPHASIS

TASKS	TNG EMP*	PERCENT MEMBERS PERFORMING		TASK DIFF**
		1ST JOB (N=143)	1ST ENL (N=382)	
M0333	7.11	62	69	5.53
M0338	6.93	63	70	5.26
M0336	6.66	40	38	5.48
M0337	6.54	40	39	6.06
C0053	6.50	52	52	5.78
D0153	6.41	40	40	5.84
F0226	6.18	27	31	5.96
D0148	6.18	27	28	5.84
D0155	6.09	36	39	6.73
A0015	6.09	39	42	4.03
F0222	6.07	25	30	5.10
A0016	6.07	36	41	3.53
M0331	6.05	52	59	4.76
D0151	5.95	34	35	5.88
A0012	5.89	87	88	4.56
D0152	5.89	26	31	5.29
M0332	5.86	36	36	5.58
C0105	5.82	38	42	5.28
D0150	5.82	31	35	5.12
D0154	5.82	45	46	5.63
C0112	5.82	38	43	5.35
F0227	5.80	20	23	6.61
F0228	5.80	22	26	6.49
C0103	5.79	36	41	5.60

* Mean TE Rating is 2.81, and Standard Deviation is 1.65 (High TE = 4.46)

** Average TD Rating is 5.00

TABLE 37

TASKS RATED HIGHEST IN TASK DIFFICULTY

PERCENT MEMBERS PERFORMING							
TASKS	TASK DIFF	1ST JOB (N=143)	1ST ENL (N=382)	3-SKL LVL (N=333)	5-SKL LVL (N=458)	7-SKL LVL (N=156)	TNG EMP
C0085	8.63	12	12	11	11	6	
C0116	8.21	10	12	11	9	8	2.32
C0090	8.12	16	22	21	18	10	3.04
C0117	7.94	14	15	16	12	11	2.75
B0049	7.76	23	19	20	19	16	3.62
C0109	7.67	12	16	15	16	10	2.93
E0189	7.58	15	23	23	20	18	2.68
H0248	7.46	28	36	33	39	28	5.18
K0315	7.38	23	25	25	30	20	4.66
J0303	7.38	11	16	16	15	13	2.54
H0249	7.20	29	35	33	37	26	5.02
K0314	7.15	29	32	31	35	23	5.27
D0149	6.98	24	27	27	28	22	5.75
H0245	6.87	10	18	17	22	20	3.54
C0072	6.79	9	13	13	10	8	1.88
D0155	6.73	36	39	40	39	28	6.09

* Mean TD Rating is 5.00, and Standard Deviation is 1.00 (High TD = 6.00)

** Average TE Rating is 2.81

Specialty Training Standard (STS)

A comprehensive review of STS 3E0X1, dated April 1997, compared STS items to survey data (based on assistance from training course SMEs in matching JI tasks to STS elements.) STS elements containing general knowledge information, mandatory entries, subject-matter-knowledge-only requirements, or basic supervisory responsibilities were not examined. Task knowledge and performance elements of the STS were compared against the standard set forth in AETCI 36-2601 and AFI 36-2623 (i.e., include tasks performed or knowledge required by 20 percent or more of the personnel in a skill level (criterion group) of the AFS.)

Overall, the STS provides very comprehensive coverage of the work performed by personnel in this career ladder, with survey data supporting almost all of the essential elements. Some elements with no performance coding at the 3-skill level course, have 20 percent of personnel performing matched tasks and should be reviewed by training personnel for possible recoding (Table 38).

Tasks that were not referenced to any element of the STS are listed at the end of the STS computer listing. Almost none have high or even moderate ATI scores. These tasks were reviewed to determine if there were any tasks concentrated around any particular function or job. Some were overlooked and should have been placed but most with higher to moderate ATI scores are too general in scope and did not fit in any specific position in the STS. Some technical tasks that are performed by 20 percent or more respondents of the STS target groups, but which were not referenced to any STS element, are displayed in Table 35 and demonstrate the above explanation. None-the-less, training personnel and SMEs should review these not-referenced tasks to determine if any represent a true training need and therefore merit inclusion in the STS.

TABLE 38

EXAMPLES OF TECHNICAL TASKS PERFORMED BY AFSC 3E0X1 GROUP MEMBERS
SUGGESTED FOR PROFICIENCY CODE REVIEW TO PERFORMANCE CODING
(PERCENT MEMBERS PERFORMING)

TASKS			TNG EMP	PERCENT MEMBERS PERFORMING			TASK DIFF	ATI
				3-SKL LVL (N=333)	5-SKL LVL (N=458)	7-SKL LVL (N=156)		
17.3.2	Splice high-voltage underground cable using pre-form kits -	a						
D0148	Splice high-voltage underground cables using pre-form kits	B	6.18	29	29	21	5.84	11
19.7	Inspect airfield beacon and obstruction lights	a						
F0197	Inspect airfield lights, beacon lights, or obstruction lights	B	5.09	40	34	26	3.66	10
22.2.1	Install primary distribution system grounds	b						
I0253	Install primary distribution grounds	B	5.39	26	28	19	5.22	11
23.1.1	Install fire alarm systems							
K0310	Remove or install fire alarm systems or components		4.46	29	30	19	6.38	12
23.3.1	Troubleshoot fire alarm systems							
K0315	troubleshoot fire alarm systems	B	5.27	31	35	23	7.15	12

* Mean TE Rating is 2.81, and Standard Deviation is 2.56 (High TE = 5.37)

** Average TD Rating is 5.00

TABLE 39

EXAMPLES OF TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE
GROUP MEMBERS AND NOT REFERENCED TO THE STS

TASKS		PERCENT MEMBERS PERFORMING				TASK DIFF	ATT	
		3-SKL LVL (N=333)		5-SKL LVL (N=458)				7-SKL LVL (N=156)
		TNG EMP						
E0181	Rewire lighting fixtures	4.68	76	69	40	4.16	18	
J0281	Remove or install AC equipment	3.11	50	47	21	5.10	17	
C0069	Inspect pole-mounted insulators	3.82	32	31	24	4.38	15	
C0119	Trim or cut trees to clear from overhead conductors	3.96	41	29	19	4.15	15	
E0185	Troubleshoot electrical distribution systems in hazardous locations	3.80	38	35	24	6.34	15	
J0282	Remove or install AC equipment controls	3.05	40	38	21	5.10	15	
J0283	Remove or install AC equipment power circuits	3.02	43	42	19	5.21	15	
C0054	Connect or disconnect overhead conductors, other than during removal or installation of overhead conductors	4.95	37	32	20	5.83	12	
D0150	Splice low-voltage underground cables	5.82	35	36	21	5.12	12	
N0352	Don or doff chemical warfare personal protective clothing	4.52	39	56	56	4.05	12	
F0195	Connect airfield light constant current regulators for emergency operations	5.25	25	23	15	5.66	11	
F0209	Remove or install airfield light grounding system components	4.77	20	16	10	4.75	11	
F0225	Test IL transformers	4.80	23	15	12	4.94	11	
F0228	Troubleshoot airfield lighting system equipment	5.80	26	25	17	6.49	11	

* Mean TE Rating is 2.81, and Standard Deviation is 2.56 (High TE = 5.37)

** Average TD Rating is 5.00

JOB SATISFACTION ANALYSIS

ACTIVE DUTY JOB SATISFACTION

An examination of the job satisfaction indicators of various groups can give career ladder managers a better understanding of some of the factors which may affect the job performance of airmen in the career ladder. Attitude questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions were included in the survey booklet to provide indications of job satisfaction.

Table 40 presents job satisfaction data for AFSC 3E0X1 TAFMS AD groups, together with TAFMS data for a comparative sample of Support career ladders surveyed in 1998. All 3E0X1 TAFMS groups rated job interest, utilization of talents, utilization of training, and sense of accomplishment gained from work similar to the comparative 1998 sample. These same groups also have similar reenlistment intentions to the comparative sample, however one-third of the career members may be exiting the service at their next decision point.

An indication of how job satisfaction perceptions have changed over time for the 3E0X1 career field is provided in Table 41. The most notable differences are in reenlistment intentions which have dropped for second term and career airmen.

Table 42, provides a total sample review of the job satisfaction ratings for the technical clusters identified in this survey against which to compare the AD Table 43, the ANG Table 44, and the AFRC Table 46. Table 42 shows highest satisfaction ratings for instructors and lowest ratings for the mobility cluster. Eighty-one percent in the core Electrical Systems cluster indicate they are leaning toward reenlistment, but a look at Tables 43 (AD), 44 (ANG), and 45 (AFRC) shows this is high because of the ANG and AFRC.

ANG AND AFRC JOB SATISFACTION

Job satisfaction indicators for ANG and AFRC are provided in Tables 44 and 45. Note groups with fewer than five members are not reported. In general, these indicators show an overall high satisfaction.

TABLE 40

COMPARISON OF JOB SATISFACTION INDICATORS BY TAFMS AD GROUPS TO OTHER SUPPORT AFSS
(PERCENT MEMBERS RESPONDING)

	1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
	1999 3E0X1 (N=382)	COMP SAMPLE* (N=249)	1999 3E0X1 (N=149)	COMP SAMPLE* (N=190)	1999 3E0X1 (N=413)	COMP SAMPLE* (N=383)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	85	77	75	80	82	81
SO-SO	9	13	18	10	12	12
DULL	6	10	7	10	6	7
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	89	84	86	82	85	83
LITTLE OR NOT AT ALL	11	16	14	18	15	17
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	91	88	83	85	82	81
LITTLE OR NOT AT ALL	9	12	17	15	18	19
<u>SENSE OF ACCOMPLISHMENT GAINED FROM WORK:</u>						
SATISFIED	80	74	76	72	77	73
NEUTRAL	9	10	9	11	9	9
DISSATISFIED	11	16	15	17	14	18
<u>REENLISTMENT INTENTIONS:</u>						
YES, OR PROBABLY YES	53	47	56	56	67	72
NO, OR PROBABLY NO	47	53	44	44	10	11
PLAN TO RETIRE	0	0	0	0	23	17

* Comparative sample of Support career ladders surveyed in 1998 include the 3N0X1, 3N0X2, and 3V0X2 AFSCs.

TABLE 41

COMPARISON OF JOB SATISFACTION INDICATORS BY TAFMS AD GROUPS TO THE 1996 SAMPLE
(PERCENT MEMBERS RESPONDING)

	1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
	1999 3E0X1 (N=382)	1996 3E0X1 (N=341)	1999 3E0X1 (N=149)	1996 3E0X1 (N=312)	1999 3E0X1 (N=413)	1996 3E0X1 (N=529)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	85	84	75	85	82	81
SO-SO	9	11	18	11	12	13
DULL	6	5	7	4	6	6
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	89	87	86	90	85	85
LITTLE OR NOT AT ALL	11	13	14	10	15	15
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	91	85	83	90	82	79
LITTLE OR NOT AT ALL	9	15	17	10	18	21
<u>SENSE OF ACCOMPLISHMENT GAINED FROM WORK:</u>						
SATISFIED	80	82	76	86	77	78
NEUTRAL	9	9	9	6	9	7
DISSATISFIED	11	9	15	8	14	15
<u>REENLISTMENT INTENTIONS:</u>						
YES, OR PROBABLY YES	53	56	56	77	67	72
NO, OR PROBABLY NO	47	44	44	23	10	11
PLAN TO RETIRE	0	0	0	0	23	17

* Comparative sample of Support career ladders surveyed in 1998 include the 3N0X1, 3N0X2, and 3V0X2 AFSCs.

TABLE 42

**COMPARISON OF JOB SATISFACTION INDICATORS BY SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)**

Electrical Systems Cluster (ST 44) (N=907)	Alarms Job (ST 106) (N=40)	Entry-Lvl Electrician Cluster (ST 46) (N=216)	Guard Gen Systems Cluster (ST 23) (N=30)	Reserve Mobility Cluster (ST 53) (N=22)	Manager Job (ST 60) (N=152)	Instructor Job (ST 64) (N=43)
83 12 5	81 12 7	80 15 5	70 20 10	59 18 23	85 8 7	84 9 7
87 13	85 15	88 12	77 23	64 36	87 13	91 9
86 14	85 15	87 13	73 27	59 41	84 16	95 5
79 11 10	80 12 8	75 12 13	53 20 27	68 14 18	80 8 12	84 9 7
81 19 0	63 36 1	69 29 2	77 23 0	72 14 14	65 15 20	74 19 7

EXPRESSED JOB INTEREST:

INTERESTING
SO-SO
DULL

PERCEIVED UTILIZATION OF TALENTS:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

PERCEIVED UTILIZATION OF TRAINING:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

SENSE OF ACCOMPLISHMENT GAINED FROM WORK:

SATISFIED
NEUTRAL
DISSATISFIED

REENLISTMENT INTENTIONS:

YES, OR PROBABLY YES
NO, OR PROBABLY NO
WILL RETIRE

TABLE 43

COMPARISON OF JOB SATISFACTION INDICATORS BY AD SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)

Electrical Systems Cluster (ST 44) (N=551)	Alarms Job (ST 106) (N=40)	Entry-Lvl Electrician Cluster (ST 46) (N=121)	Manager Job (ST 60) (N=127)	Instructor Job (ST 64) (N=41)
83	82	80	83	86
11	13	17	9	7
6	5	3	8	7
88	92	91	85	90
12	8	9	15	10
88	78	88	83	98
12	28	12	17	2
79	79	75	79	86
9	8	12	8	7
12	13	13	12	7
59	54	60	65	78
32	43	39	14	17
9	3	1	21	5

EXPRESSED JOB INTEREST:

INTERESTING
SO-SO
DULL

PERCEIVED UTILIZATION OF TALENTS:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

PERCEIVED UTILIZATION OF TRAINING:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

SENSE OF ACCOMPLISHMENT GAINED FROM WORK:

SATISFIED
NEUTRAL
DISSATISFIED

REENLISTMENT INTENTIONS:

YES, OR PROBABLY YES
NO, OR PROBABLY NO
WILL RETIRE

TABLE 44

COMPARISON OF JOB SATISFACTION INDICATORS BY ANG SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)

Electrical Systems Cluster (ST 44) (N=254)	Entry-Lvl Electrician Cluster (ST 46) (N=69)	Guard Gen Systems Cluster (ST 23) (N=16)	Manager Job (ST 60) (N=14)
78	79	75	93
18	14	25	7
4	7	0	0
85	84	75	79
15	16	25	21
81	84	69	72
19	16	31	28
74	70	44	86
16	13	25	14
10	17	31	0

EXPRESSED JOB INTEREST:

INTERESTING
SO-SO
DULL

PERCEIVED UTILIZATION OF TALENTS:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

PERCEIVED UTILIZATION OF TRAINING:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

SENSE OF ACCOMPLISHMENT GAINED FROM WORK:

SATISFIED
NEUTRAL
DISSATISFIED

TABLE 45

COMPARISON OF JOB SATISFACTION INDICATORS BY AFRC SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)

Electrical Systems Cluster (ST 44) (N=102)	Entry-Lvl Electrician Cluster (ST 46) (N=26)	Reserve Mobility Cluster (ST 23) (N=14)	Manager Job (ST 60) (N=11)
92	84	79	100
7	12	14	0
1	4	7	0
92	88	79	91
8	12	21	9
90	88	71	82
10	12	29	18
91	84	93	100
7	8	0	0
2	8	7	0

EXPRESSED JOB INTEREST:

INTERESTING
SO-SO
DULL

PERCEIVED UTILIZATION OF TALENTS:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

PERCEIVED UTILIZATION OF TRAINING:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

SENSE OF ACCOMPLISHMENT GAINED FROM WORK:

SATISFIED
NEUTRAL
DISSATISFIED

IMPLICATIONS

This survey was initiated to provide current job and task data for use in evaluating the AFMAN 36-2108 *Specialty Description* and appropriate training documents.

Survey results clearly indicate that the present classification structure, as described in the latest specialty description, accurately portrays the jobs performed in this career ladder. Career ladder training documents appear, on the whole, to be well supported by survey data, but require further review to ensure appropriate proficiency coding. The career ladder progression is similar to other AFSCs technical involvement at the lower skill levels with the progression to more management at the 7-skill level being stronger for the AD component than the ANG and AFRC. Job satisfaction is fairly high for first-enlistment and career AD groups. Additionally, this career ladder has falling reenlistment intentions for first-enlistment and career personnel compared to the 1996 survey sample.

APPENDIX A

**SELECTED REPRESENTATIVE TASKS PERFORMED
BY SPECIALTY JOB GROUPS**

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TABLE A1

ELECTRICAL SYSTEMS CLUSTER (ST 44)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
A0012	Measure, cut, bend, fit, or attach electrical conduits	91
A0003	Clean shop or storage facilities	91
G0235	Remove or install outdoor light fixtures	86
N0355	Fire weapons, such as M-16 rifles	85
E0181	Rewire lighting fixtures	84
G0234	Remove or install outdoor light fixture components	84
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	84
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	82
M0338	Perform or practice self-aid or buddy care procedures	82
G0237	Troubleshoot outdoor lighting systems	81
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	81
A0021	Route wires or cables, other than through conduits	79
E0170	Move or install interior lighting fixtures	78
E0179	Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	77
G0236	Remove or install outdoor lighting control components	76
E0177	Remove or install ground fault current interrupter (GFCI) devices	75
M0331	Perform equipment lock-out and tag-out procedures	75
E0167	Inspect receptacles, junctions, switches, or switch boxes	74
N0357	Inspect mobility bags or kits	74
N0394	Prepare personal clothing and equipment for deployment	74
A0019	Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	73
E0157	Bench check, service, or repair lighting fixtures	72
E0184	Troubleshoot electrical control systems	72
G0231	Adjust light fixtures, including streetlights or recreational light fixtures, other than airfield light fixtures	72
O0423	Install or remove tent lighting	72
E0188	Troubleshoot facility lighting	71
E0183	Test GFCI devices	71
A0001	Analyze drawings, schematics, or specifications for equipment installations	70
E0160	Inspect distribution panels	69
N0352	Don or doff chemical warfare personal protective clothing	68
E0174	Remove or install equipment grounds	68
N0361	Install emergency airfield lighting systems (EALSs)	68
E0186	Troubleshoot electrical distribution systems, other than in hazardous locations	67
G0233	Clean light fixture reflectors or lenses, other than on airfield light fixtures	67
E0161	Inspect equipment grounds	67
E0171	Remove or install distribution systems or branch circuits, other than explosion-proof	66
N0356	Identify chemical warfare agents	65
A0011	Measure, chisel, cut, or drill structures	64
C0053	Climb poles	63

TABLE A2
ALARMS JOB (ST106)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
K0314	Troubleshoot fire alarm systems	100
K0306	Inspect, clean, or service fire alarm systems or components	100
K0310	Remove or install fire alarm systems or components	98
K0311	Remove or install intrusion alarm systems or components	98
K0315	Troubleshoot intrusion alarm systems	98
K0307	Inspect, clean, or service intrusion alarm systems or components	98
J0286	Remove or install batteries	88
A0003	Clean shop or storage facilities	85
A0012	Measure, cut, bend, fit, or attach electrical conduits	85
K0308	Remove or install annunciator panels	78
A0022	Solder electrical connections	75
J0268	Inspect, clean, or service batteries	70
N0355	Fire weapons, such as M-16 rifles	70
M0338	Perform or practice self-aid or buddy care procedures	70
K0312	Test warning alarm units or control systems for opens, shorts, or grounds	68
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	65
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	65
A0021	Route wires or cables, other than through conduits	63
A0001	Analyze drawings, schematics, or specifications for equipment installations	60
A0006	Conduct pre- or postinspections of contracted work	58
J0288	Remove or install DC equipment	53
A0005	Conduct on-site investigations of proposed work to determine resource requirements	53
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	53
A0011	Measure, chisel, cut, or drill structures	50
N0394	Prepare personal clothing and equipment for deployment	50
N0388	Perform recall procedures	50
J0287	Remove or install battery chargers, other than substation battery chargers	48
N0352	Don or doff chemical warfare personal protective clothing	48
J0289	Remove or install DC equipment controls	45
N0357	Inspect mobility bags or kits	45
J0293	Remove or install low-voltage AC transformers	45
J0281	Remove or install AC equipment	43
J0272	Inspect, clean, or service electrical controls or sensors	43
J0290	Remove or install DC power systems	43
N0390	Practice communications security (COMSEC) or operations security (OPSEC) during contingency exercises or operations	43
N0356	Identify chemical warfare agents	43
N0377	Perform contingency or wartime multiskilling tasks	43
J0275	Inspect, clean, or service installed DC equipment	40
J0262	Adjust electrical controls or sensors	40
N0392	Practice self-protection from extreme weather	40
N0361	Install emergency airfield lighting systems (EALSs)	40
N0379	Perform deployment processing	40
R0538	Conduct on-the-job training (OJT)	38

TABLE A3

ENTRY-LEVEL ELECTRICIAN CLUSTER (ST 46)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
A0012	Measure, cut, bend, fit, or attach electrical conduits	93
E0181	Rewire lighting fixtures	85
E0179	Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	84
E0170	Move or install interior lighting fixtures	83
A0003	Clean shop or storage facilities	81
E0167	Inspect receptacles, junctions, switches, or switch boxes	77
E0177	Remove or install ground fault current interrupter (GFCI) devices	75
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	70
N0355	Fire weapons, such as M-16 rifles	68
E0183	Test GFCI devices	63
G0235	Remove or install outdoor light fixtures	61
E0188	Troubleshoot facility lighting	59
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	59
A0021	Route wires or cables, other than through conduits	58
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	54
M0338	Perform or practice self-aid or buddy care procedures	54
E0171	Remove or install distribution systems or branch circuits, other than explosion-proof	53
A0019	Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	53
G0234	Remove or install outdoor light fixture components	52
E0157	Bench check, service, or repair lighting fixtures	51
E0184	Troubleshoot electrical control systems	50
N0394	Prepare personal clothing and equipment for deployment	50
G0237	Troubleshoot outdoor lighting systems	46
A0001	Analyze drawings, schematics, or specifications for equipment installations	46
E0186	Troubleshoot electrical distribution systems, other than in hazardous locations	44
E0160	Inspect distribution panels	44
N0357	Inspect mobility bags or kits	44
N0352	Don or doff chemical warfare personal protective clothing	42
A0011	Measure, chisel, cut, or drill structures	40
M0331	Perform equipment lock-out and tag-out procedures	39
E0166	Inspect or service interior power distribution systems	38
N0356	Identify chemical warfare agents	38
E0176	Remove or install explosion-proof receptacles, fixtures, or switches	36
O0423	Install or remove tent lighting	35
G0236	Remove or install outdoor lighting control components	34
E0174	Remove or install equipment grounds	34
E0165	Inspect or service emergency lighting units (ELUs)	33
G0231	Adjust light fixtures, including streetlights or recreational light fixtures, other than airfield light fixtures	32
A0005	Conduct on-site investigations of proposed work to determine resource requirements	31

TABLE A4

GUARD GENERAL SYSTEMS CLUSTER (ST 23)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
A0012	Measure, cut, bend, fit, or attach electrical conduits	93
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	87
A0021	Route wires or cables, other than through conduits	70
A0003	Clean shop or storage facilities	63
A0001	Analyze drawings, schematics, or specifications for equipment installations	57
A0015	Perform operator maintenance on high-reach trucks with insulated bucket	47
A0019	Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	40
A0016	Perform operator maintenance on line maintenance trucks	40
A0017	Read service meters	37
A0022	Solder electrical connections	37
C0053	Climb poles	37
C0057	Dig holes for poles or guy anchors using auger bits	37
A0011	Measure, chisel, cut, or drill structures	33
M0338	Perform or practice self-aid or buddy care procedures	30
C0062	Fill holes or tamp earth around poles or guy anchors	30
E0181	Rewire lighting fixtures	27
E0183	Test GFCI devices	27
O0423	Install or remove tent lighting	27
E0167	Inspect receptacles, junctions, switches, or switch boxes	27
C0064	Hoist materials or equipment to linemen	27
C0060	Drill bolt holes	27
A0014	Perform dielectric tests on aerial lift or line maintenance vehicles	23
C0095	Remove or install hardware on crossarms	23
M0337	Perform or practice pole top rescue procedures	23
E0170	Move or install interior lighting fixtures	20
A0023	Test rubber protective equipment	20
M0336	Perform or practice manhole rescue procedures	20
C0094	Remove or install guy wires	20
C0058	Dig holes for poles or guy anchors using hand equipment	20
C0112	Set utility poles	20
A0005	Conduct on-site investigations of proposed work to determine resource requirements	17
C0068	Inspect overhead fuse cutouts	17
N0356	Identify chemical warfare agents	17
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	17
C0059	Direct equipment operators during pole removal or installation activities	17
C0093	Remove or install guy anchors	17
N0394	Prepare personal clothing and equipment for deployment	13
O0400	Assemble or lay AM-2 matting	13

TABLE A5

RESERVE MOBILITY CLUSTER (ST 53)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
N0355	Fire weapons, such as M-16 rifles	95
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	77
A0012	Measure, cut, bend, fit, or attach electrical conduits	77
N0394	Prepare personal clothing and equipment for deployment	73
N0352	Don or doff chemical warfare personal protective clothing	68
N0357	Inspect mobility bags or kits	68
A0003	Clean shop or storage facilities	59
N0356	Identify chemical warfare agents	55
O0423	Install or remove tent lighting	55
A0021	Route wires or cables, other than through conduits	55
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	45
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	45
N0376	Perform chemical warfare agent decontamination procedures	41
E0167	Inspect receptacles, junctions, switches, or switch boxes	41
E0181	Rewire lighting fixtures	41
A0019	Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	32
M0338	Perform or practice self-aid or buddy care procedures	32
O0400	Assemble or lay AM-2 matting	32
N0361	Install emergency airfield lighting systems (EALSS)	32
N0379	Perform deployment processing	27
E0179	Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	27
E0183	Test GFCI devices	27
O0445	Tear down bare base structures	23
N0358	Inspect packed or palletized mobility or contingency equipment prior to transport	23
M0331	Perform equipment lock-out and tag-out procedures	23
N0381	Perform explosive ordnance reconnaissance	23
E0170	Move or install interior lighting fixtures	23
N0360	Install contingency bare base power distribution systems	23
E0177	Remove or install ground fault current interrupter (GFCI) devices	23
G0235	Remove or install outdoor light fixtures	23
N0373	Pack or palletize mobility or contingency equipment for shipment or movement	18
N0392	Practice self-protection from extreme weather	18
O0418	Identify and report suspected unexploded ordnance (UXO)	18
A0015	Perform operator maintenance on high-reach trucks with insulated bucket	18
E0171	Remove or install distribution systems or branch circuits, other than explosion-proof	18
N0390	Practice communications security (COMSEC) or operations security (OPSEC) during contingency exercises or operations	14
R0538	Conduct on-the-job training (OJT)	14
N0382	Perform individual movement techniques for work party security	14
T0605	Pick up, deliver, or store equipment, tools, parts, or supplies	14
O0422	Install or remove aircraft arresting systems	14
N0388	Perform recall procedures	14
O0414	Erect bare base structures	14

TABLE A6

MANAGER JOB (ST 60)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
Q0482	Counsel subordinates concerning personal matters	89
Q0478	Conduct supervisory performance feedback sessions	84
Q0484	Determine or establish work assignments or priorities	81
R0539	Counsel trainees on training progress	80
Q0531	Write recommendations for awards or decorations	80
Q0477	Conduct supervisory orientations for newly assigned personnel	80
Q0472	Assign personnel to work areas or duty positions	78
Q0513	Inspect worksites	77
R0538	Conduct on-the-job training (OJT)	76
Q0530	Write or indorse military performance reports	74
Q0507	Evaluate personnel for compliance with performance standards	73
R0540	Determine training requirements	72
Q0483	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	72
Q0514	Interpret plans, sketches, wiring diagrams, or specification sheets for subordinates	72
Q0515	Interpret policies, directives, or procedures for subordinates	72
A0001	Analyze drawings, schematics, or specifications for equipment installations	72
N0355	Fire weapons, such as M-16 rifles	72
R0551	Maintain training records or files	70
A0005	Conduct on-site investigations of proposed work to determine resource requirements	70
Q0489	Develop or establish work schedules	69
R0535	Brief personnel concerning training programs or matters	69
Q0498	Establish performance standards for subordinates	68
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	67
Q0474	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	66
S0580	Research information in National Electrical Code (NEC)	66
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	66
P0446	Access work information management system (WIMS) menus and data screens	64
Q0471	Assign maintenance and repair work	64
N0352	Don or doff chemical warfare personal protective clothing	63
N0388	Perform recall procedures	63
Q0481	Coordinate work activities with appropriate sections or agencies	62
Q0488	Develop or establish work methods or procedures	61
Q0485	Determine specifications for wiring, circuit protective devices, sensors, or controls	61
Q0473	Assign sponsors for newly assigned personnel	61
P0460	Prioritize job orders	60
Q0512	Inspect quality of completed repairs	60
Q0510	Initiate actions required due to substandard performance of personnel	60
N0394	Prepare personal clothing and equipment for deployment	60
N0357	Inspect mobility bags or kits	60
Q0475	Conduct self-inspections or self-assessments	59
Q0503	Evaluate job hazards or compliance with Air Force Occupational Safety and Health (AFOSH) program	59

TABLE A7
INSTRUCTOR JOB (ST 64)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
R0537	Conduct formal course classroom training	95
R0539	Counsel trainees on training progress	95
R0552	Personalize lesson plans	95
R0534	Administer or score tests	91
R0542	Develop or procure training materials or aids	86
R0551	Maintain training records or files	84
R0535	Brief personnel concerning training programs or matters	84
R0550	Inspect training materials or aids for operation or suitability	79
C0053	Climb poles	74
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	70
R0543	Develop training programs, plans, or procedures	67
R0547	Evaluate effectiveness of training programs, plans, or procedures	65
R0544	Develop written tests	65
R0538	Conduct on-the-job training (OJT)	63
R0536	Complete student entry or withdrawal forms	60
C0057	Dig holes for poles or guy anchors using auger bits	60
A0003	Clean shop or storage facilities	60
A0016	Perform operator maintenance on line maintenance trucks	60
R0540	Determine training requirements	58
M0337	Perform or practice pole top rescue procedures	58
A0015	Perform operator maintenance on high-reach trucks with insulated bucket	58
R0546	Establish procedures for accountability of students	56
T0591	Identify and report equipment or supply problems	56
C0112	Set utility poles	56
R0545	Establish or maintain study reference files	53
C0064	Hoist materials or equipment to linemen	53
R0541	Develop formal course curricula, plans of instruction (POIs), or career field education and training plans (CFETPs)	51
A0007	Conduct safety inspections of equipment or facilities	51
T0590	Evaluate serviceability of equipment, tools, parts, or supplies	51
C0077	Load or unload poles	51
C0062	Fill holes or tamp earth around poles or guy anchors	51
C0060	Drill bolt holes	51
R0549	Evaluate training methods or techniques of instructors	49
M0339	Perform safety supervision of personnel working on energized circuits	49
M0338	Perform or practice self-aid or buddy care procedures	49
C0056	Determine depth and diameter of holes for pole installations	49
C0059	Direct equipment operators during pole removal or installation activities	47
A0001	Analyze drawings, schematics, or specifications for equipment installations	47
Q0507	Evaluate personnel for compliance with performance standards	44
C0118	Transport poles	44
R0548	Evaluate progress of trainees using task qualification training (TQT) sheets	42

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APPENDIX B

**SELECTED REPRESENTATIVE TASKS
PERFORMED BY THE SPECIALTY JOBS IN THE
ELECTRICAL SYSTEMS CLUSTER**

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TABLE B1

RELATIVE PERCENT TIME SPENT ON DUTIES BY JOBS OF ELECTRICAL SYSTEMS CLUSTER

DUTIES	Interior Electr Job (ST 170) (N=394)	Exterior Electr Job (ST 160) (N=355)	Lineman Job (ST 111) (N=75)	Airfield Electr Job (ST 142) (N=16)	Mobility Prime BEEF Job (ST 63) (N=33)
A PERFORMING GENERAL ELECTRICAL SYSTEMS ACTIVITIES	9	6	11	5	9
B INSTALLING OR MAINTAINING SUBSTATION EQUIPMENT	1	3	2	2	1
C INSTALLING OR MAINTAINING OVERHEAD SYSTEMS	2	20	25	6	4
D INSTALLING OR MAINTAINING UNDERGROUND SYSTEMS	3	9	9	5	2
E INSTALLING OR MAINTAINING LOW-VOLTAGE ELECTRICAL POWER OR LIGHTING DISTRIBUTION SYSTEMS	20	9	13	3	9
F INSTALLING OR MAINTAINING AIRFIELD LIGHTING SYSTEMS	1	9	6	36	3
G INSTALLING OR MAINTAINING OUTDOOR LIGHTING SYSTEMS	4	4	6	3	2
H INSTALLING OR MAINTAINING MOTORS	3	1	*	*	2
I INSTALLING OR MAINTAINING GROUND SYSTEMS	2	2	1	1	1
J INSTALLING OR MAINTAINING ELECTROMECHANICAL SYSTEMS, EQUIPMENT, APPLIANCES, AND DEVICES	10	5	2	1	3
K INSTALLING OR MAINTAINING ALARM SYSTEMS AND COMPONENTS	2	1	1	1	*
L INSPECTING OR MAINTAINING CATHODIC PROTECTION SYSTEMS	*	1	*	1	*
M PRACTICING SAFETY OR RENDERING FIRST AID	4	4	5	3	4
N PERFORMING MOBILITY AND CONTINGENCY ACTIVITIES	15	10	12	9	34
O PERFORMING PRIME BASE ENGINEER EMERGENCY FORCE (BEEF) ACTIVITIES	6	4	3	1	13
P PERFORMING WORK INFORMATION MANAGEMENT SYSTEM (WIMS) ACTIVITIES	2	2	*	2	*
Q PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	9	5	2	11	5
R PERFORMING TRAINING ACTIVITIES	3	2	1	6	3
S PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1	2	*	2	1
T PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	3	2	1	2	4

TABLE B2

INTERIOR ELECTRICIAN JOB (ST 170)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
E0170	Move or install interior lighting fixtures	97
A0012	Measure, cut, bend, fit, or attach electrical conduits	97
E0179	Remove or install receptacles, junctions, switches, or switch boxes, other than explosion-proof	96
E0181	Rewire lighting fixtures	96
E0167	Inspect receptacles, junctions, switches, or switch boxes	94
E0177	Remove or install ground fault current interrupter (GFCI) devices	94
E0188	Troubleshoot facility lighting	92
A0003	Clean shop or storage facilities	90
E0184	Troubleshoot electrical control systems	89
N0355	Fire weapons, such as M-16 rifles	89
E0183	Test GFCI devices	88
E0171	Remove or install distribution systems or branch circuits, other than explosion-proof	87
G0235	Remove or install outdoor light fixtures	86
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	86
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	85
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	85
G0234	Remove or install outdoor light fixture components	84
M0338	Perform or practice self-aid or buddy care procedures	83
E0186	Troubleshoot electrical distribution systems, other than in hazardous locations	82
G0237	Troubleshoot outdoor lighting systems	82
A0021	Route wires or cables, other than through conduits	81
E0160	Inspect distribution panels	80
E0174	Remove or install equipment grounds	80
E0157	Bench check, service, or repair lighting fixtures	79
N0357	Inspect mobility bags or kits	79
G0236	Remove or install outdoor lighting control components	79
A0001	Analyze drawings, schematics, or specifications for equipment installations	79
E0166	Inspect or service interior power distribution systems	78
N0394	Prepare personal clothing and equipment for deployment	78
M0331	Perform equipment lock-out and tag-out procedures	77
O0423	Install or remove tent lighting	77
A0019	Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	76
N0352	Don or doff chemical warfare personal protective clothing	75
J0281	Remove or install AC equipment	75
A0011	Measure, chisel, cut, or drill structures	74
E0161	Inspect equipment grounds	74
E0165	Inspect or service emergency lighting units (ELUs)	73
J0283	Remove or install AC equipment power circuits	71
N0356	Identify chemical warfare agents	70
N0361	Install emergency airfield lighting systems (EALSs)	69
E0176	Remove or install explosion-proof receptacles, fixtures, or switches	69

TABLE B3

EXTERIOR ELECTRICIAN JOB (ST 160)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
G0235	Remove or install outdoor light fixtures	95
G0237	Troubleshoot outdoor lighting systems	94
G0234	Remove or install outdoor light fixture components	94
M0338	Perform or practice self-aid or buddy care procedures	92
C0095	Remove or install hardware on crossarms	92
A0003	Clean shop or storage facilities	91
C0091	Remove or install fuse cutouts	91
C0062	Fill holes or tamp earth around poles or guy anchors	91
G0231	Adjust light fixtures, including streetlights or recreational light fixtures, other than airfield light fixtures	90
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	90
A0012	Measure, cut, bend, fit, or attach electrical conduits	89
C0053	Climb poles	89
C0094	Remove or install guy wires	89
C0064	Hoist materials or equipment to linemen	88
N0355	Fire weapons, such as M-16 rifles	88
C0057	Dig holes for poles or guy anchors using auger bits	88
C0112	Set utility poles	88
C0096	Remove or install insulators for overhead conductors	88
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	87
D0122	Dig trenches using hand equipment	87
C0105	Remove or install service drops	87
G0236	Remove or install outdoor lighting control components	86
C0060	Drill bolt holes	86
C0077	Load or unload poles	86
C0098	Remove or install overhead conductors	86
C0093	Remove or install guy anchors	86
A0021	Route wires or cables, other than through conduits	85
C0068	Inspect overhead fuse cutouts	85
C0103	Remove or install pole-mounted transformers	85
G0233	Clean light fixture reflectors or lenses, other than on airfield light fixtures	84
M0331	Perform equipment lock-out and tag-out procedures	84
D0154	Trace underground cables	84
C0118	Transport poles	84
C0101	Remove or install pole grounds	84
E0181	Rewire lighting fixtures	83
C0119	Trim or cut trees to clear from overhead conductors	83
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	83
D0155	Troubleshoot underground systems	83
C0070	Inspect poles or crossarms for cracks or deterioration	83
C0089	Remove or install crossarms which support de-energized conductors	83
C0092	Remove or install ground sets on overhead lines	82

TABLE B4
LINEMAN JOB (ST 111)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
A0003	Clean shop or storage facilities	93
C0053	Climb poles	92
A0012	Measure, cut, bend, fit, or attach electrical conduits	88
G0235	Remove or install outdoor light fixtures	84
C0062	Fill holes or tamp earth around poles or guy anchors	84
C0057	Dig holes for poles or guy anchors using auger bits	84
C0095	Remove or install hardware on crossarms	84
C0064	Hoist materials or equipment to linemen	81
C0060	Drill bolt holes	81
G0234	Remove or install outdoor light fixture components	77
C0112	Set utility poles	75
C0096	Remove or install insulators for overhead conductors	71
C0094	Remove or install guy wires	71
G0231	Adjust light fixtures, including streetlights or recreational light fixtures, other than airfield light fixtures	69
D0122	Dig trenches using hand equipment	69
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	69
N0355	Fire weapons, such as M-16 rifles	68
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	68
C0101	Remove or install pole grounds	68
C0091	Remove or install fuse cutouts	65
C0098	Remove or install overhead conductors	65
E0181	Rewire lighting fixtures	64
C0077	Load or unload poles	64
C0089	Remove or install crossarms which support de-energized conductors	64
M0338	Perform or practice self-aid or buddy care procedures	60
D0123	Dig trenches using power equipment	60
A0021	Route wires or cables, other than through conduits	60
G0237	Troubleshoot outdoor lighting systems	59
G0233	Clean light fixture reflectors or lenses, other than on airfield light fixtures	59
A0019	Remove or install nonmetallic, rigid conduits, such as polyvinyl chlorides (PVCs)	59
D0130	Install pull wire	59
C0103	Remove or install pole-mounted transformers	59
N0357	Inspect mobility bags or kits	56
C0118	Transport poles	56
C0105	Remove or install service drops	56
E0170	Move or install interior lighting fixtures	55
E0183	Test GFCI devices	53
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	53
C0068	Inspect overhead fuse cutouts	53
C0093	Remove or install guy anchors	53
C0092	Remove or install ground sets on overhead lines	53

TABLE B5

AIRFIELD ELECTRICIAN JOB (ST 142)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
F0208	Remove or install airfield light fixtures	100
F0197	Inspect airfield lights, beacon lights, or obstruction lights	100
F0216	Remove or install isolating (IL) transformers	100
F0190	Adjust airfield light fixtures	100
F0196	Coordinate airfield clearance procedures with control tower personnel	94
F0228	Troubleshoot airfield lighting system equipment	94
F0226	Troubleshoot airfield lighting circuits	94
F0227	Troubleshoot airfield lighting control circuits	94
F0222	Repair airfield lighting cables	94
F0202	Perform periodic maintenance on airfield lighting system equipment	88
F0194	Clean airfield light fixtures or beacon reflectors or lenses	88
F0207	Remove or install airfield light control components	88
F0195	Connect airfield light constant current regulators for emergency operations	88
F0210	Remove or install airfield lighting system relays	88
A0003	Clean shop or storage facilities	88
F0205	Remove or install airfield light breakaway couplings	81
F0203	Perform voltage checks of airfield lighting systems	81
F0206	Remove or install airfield light constant current regulators	81
F0214	Remove or install energized airfield light fixture bulbs	75
R0538	Conduct on-the-job training (OJT)	75
F0218	Remove or install obstruction lights	75
F0201	Measure current in airfield lighting system circuits	75
R0539	Counsel trainees on training progress	75
F0229	Troubleshoot approach path indicators	75
M0331	Perform equipment lock-out and tag-out procedures	75
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	75
N0394	Prepare personal clothing and equipment for deployment	69
F0204	Realign approach path indicators	69
F0224	Test airfield lighting system relays	69
F0198	Inspect constant current regulator bushings for leakage, corrosion, or tightness	69
F0223	Test airfield cables for insulation breakdown	69
F0192	Balance airfield light constant current regulators	69
N0388	Perform recall procedures	63
Q0482	Counsel subordinates concerning personal matters	63
D0153	Test underground cable systems for opens, shorts, or grounds	63
N0361	Install emergency airfield lighting systems (EALSS)	63
D0154	Trace underground cables	63
N0355	Fire weapons, such as M-16 rifles	63
Q0507	Evaluate personnel for compliance with performance standards	56
F0209	Remove or install airfield light grounding system components	56
Q0515	Interpret policies, directives, or procedures for subordinates	56

TABLE B6

MOBILITY PRIME BEEF JOB (ST 63)

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
N0399	Tear down, inspect, clean, and reassemble weapons, such as M-16 rifles	94
O0423	Install or remove tent lighting	85
N0357	Inspect mobility bags or kits	82
N0355	Fire weapons, such as M-16 rifles	82
A0012	Measure, cut, bend, fit, or attach electrical conduits	82
A0003	Clean shop or storage facilities	79
N0394	Prepare personal clothing and equipment for deployment	79
N0376	Perform chemical warfare agent decontamination procedures	76
N0392	Practice self-protection from extreme weather	73
O0418	Identify and report suspected unexploded ordnance (UXO)	73
N0378	Perform cover and concealment techniques for work party security	70
N0390	Practice communications security (COMSEC) or operations security (OPSEC) during contingency exercises or operations	67
N0361	Install emergency airfield lighting systems (EALSSs)	67
N0379	Perform deployment processing	64
N0356	Identify chemical warfare agents	64
M0338	Perform or practice self-aid or buddy care procedures	64
N0374	Perform camouflage procedures	64
M0333	Perform or practice cardiopulmonary resuscitation (CPR)	64
N0391	Practice convoy techniques for work party security	64
O0400	Assemble or lay AM-2 matting	61
N0377	Perform contingency or wartime multiskilling tasks	58
O0445	Tear down bare base structures	58
N0375	Perform camp security	58
A0021	Route wires or cables, other than through conduits	58
N0352	Don or doff chemical warfare personal protective clothing	55
E0170	Move or install interior lighting fixtures	55
N0393	Prepare equipment for deployments, other than personal equipment	55
N0383	Perform military field sanitation techniques	55
N0358	Inspect packed or palletized mobility or contingency equipment prior to transport	52
E0181	Rewire lighting fixtures	52
C0053	Climb poles	52
N0384	Perform minor tent repairs	52
N0388	Perform recall procedures	52
N0381	Perform explosive ordnance reconnaissance	52
O0401	Assess or report base facility damage	52
O0414	Erect bare base structures	52
N0365	Install remote area lighting (RAL) sets	52
E0184	Troubleshoot electrical control systems	48
A0013	Measure, cut, thread, bend, or fit rigid conduits or pipes	48
O0429	Lay out taxiway and runway traffic markings	48
A0001	Analyze drawings, schematics, or specifications for equipment installations	48